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CATALOGUE

OF THE

LEPIDOPTERA PHALÆNÆ

IN THE

BRITISH MUSEUM.

VOLUME XII.

LONDON :

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CATALOGUE
OF THE
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IN THE
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OF THE
BRITISH MUSEUM.

BY
SIR GEORGE F. HAMPSON, BART.

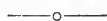
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P R E F A C E.



THE subject of Vol. XII. of the 'Catalogue of Moths' is the classification of part of the Noctuid subfamily *Catocalinæ*. The remaining portion of the subfamily, together with the small subfamilies *Mominae* and *Phytometrince*, will appear in Vol. XIII., in which the "Key to the Genera" and the "Phylogeny of the *Catocalinæ*" will be reprinted.

The *Catocalinæ* are represented in the present volume by 63 genera and 643 species, and are characterized as follows:—Vein 5 of the hind wing is fully developed and arises from close to the lower angle of the cell; the eyes are smooth and not overhung by "cilia"; the mid tibiæ are always spined, and the fore and hind tibiæ may also be similarly armed.

The subfamily is a modification of the great *Quadrifid* section of the *Noctuidæ*, many of its most divergent types having close parallels in the very large subfamily *Noctuinae*, which will be classified immediately after the *Phytometrince*; it is fairly evenly distributed in the temperate and tropical Zones, but has few Arctic or Alpine forms.

Sir George Hampson has to acknowledge the assistance which he has received, mostly from those whose help has been referred to in earlier volumes of the Catalogue, by the loan of types and

specimens, and in other ways. He has sustained a great loss by the death of Prof. J. B. Smith, of New Jersey, U.S.A., who had been so liberal in connexion with the earlier volumes of the Catalogue in the gift and loan of specimens of North-American *Noctuidæ*, on which he was the recognised authority.

The coloured drawings which have been made for the author from types of species which are not in the collection of the British Museum, and of which he has been unable to examine specimens, have been reproduced, and are severally acknowledged in the text.

The Plates to be published in connexion with this volume are numbers CXCII.-CCXXI.

SIDNEY F. HARMER,
Keeper of Zoology.

British Museum (Natural History),
December 20th, 1912.

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CATALOGUE

OF

LEPIDOPTERA PHALÆNÆ.

Family NOCTUIDÆ.

Subfamily CATOCALINÆ.

Proboscis fully developed, except in *Chelecala*; palpi usually upturned, rarely porrect or oblique, in *Crypsotidia* the 2nd joint fringed with hair above, the 3rd joint often long, sometimes dilated at extremity or acuminate; frons usually smooth, often with a tuft of hair above, in *Lophotidia* with a transverse ridge bare of scales, and with a corneous plate below it; eyes almost always large, naked, and without bristly cilia from their margins, in *Euclidimera*, *Leucomelas*, and *Gonospileia* the eyes are rather small and elliptical; antennæ usually ciliated, sometimes with bristles, or serrate, pectinate or laminate, rarely with dilations at base or middle of shaft; thorax usually clothed with scales and hair mixed, often with hair and hair-like scales, or hair only, usually without crests, but the pro- and metathorax sometimes crested; the mid tibiæ always spined, the fore and hind tibiæ often spined, the fore tibiæ sometimes with claws at extremity; the tibiæ often fringed with long hair, or with greatly developed tufts of hair especially in the males, which often have the mid tibiæ dilated with a fold containing a tuft of hair or ridge of scales, the mid femora sometimes similarly dilated; the spurs and tarsi sometimes fringed with hair, abdomen often with dorsal crests, but usually without crests and often with ridges of rough hair on basal segments, sometimes entirely clothed with woolly hair, rarely dorsally flattened. Fore wing usually triangular, sometimes rather long and narrow, or with the apex produced or falcate, the termen

usually evenly curved, often crenulate, rarely produced to points, or angled, the inner margin sometimes highly lobed; vein 1 *a* weak, not anastomosing with 1 *b*; 1 *c* absent; veins 3 and 5 usually from near angle of cell, but 3 sometimes from well before angle; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell; in *Cyligramma* 7, 8, 9 stalked; 10, 11 from cell much attenuated and approximated to the costa. Hind wing with the termen usually evenly curved, rarely angled, in *Pterocyclophora* produced to points and a short tail; veins 1 *a* and 1 *b* present; 1 *c* absent; the cell usually about half the length of wing, but often about one-third length of wing, in *Anisoneura* about one-fourth, and in *Agonista* and *Nyctipao* about one-fifth of wing; veins 3 and 4 from angle of cell, 5 fully developed from or from just above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base, then diverging, in *Acanthodelta* and *Doryodes* approximated to the cell to middle; in the males of some species of *Nyctipao* veins 3 or 4 run to the functional apex of the hind wing whilst veins 4 or 5 to 8 are aborted in a lobe at base of costa containing a glandular patch of scales, the lobe being the reduced costal half of the wing; the wings in the males are sometimes more or less entirely clothed by patches of androconia or woolly hair above or below, the hind wing below sometimes with ridges of hair on the veins, or a fold and fringe of hair on inner area.

The spines of the hind tibiæ are not a very constant character, and too great reliance should not be placed on it, besides which the spines are often difficult to see especially in the males with hairy tibiæ and are easily broken off.

The *Catocalinæ* form a well-characterised and natural subfamily, but many of its most divergent forms such as *Phyllodes*, *Cocytodes*, *Sypnoides*, *Eccrita*, *Attatha*, *Ophisma*, *Leucanitis*, *Hypogrammodes*, and *Pericyma* have extremely closely allied forms in the *Noctuinae*, and it seems probable either that the various genera are derived

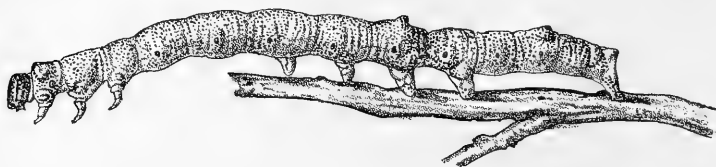


Fig. 1.—Larva of *Catocala fraxini*. †.

from different parts of the *Noctuinae* or that spiny tibiæ are an ancestral character in the *Noctuidæ*, and the *Noctuinae* are derived from various branches of the *Catocalinæ*; in either case they would have to be united as one very large subfamily, or divided into subfamilies or other characters.

In the *Phytometrince* (*Plusiince*) some of the genera have the tibiæ

phylla. Xylophylla

phyllodes. Loboph

Miniodes. Dermo

Lagoptera. Eud

Hypanna.

Parallelia.

canthonyx.

ptis. Plecopterodes. Gonodontodes. Focillidia.

Cerocala.

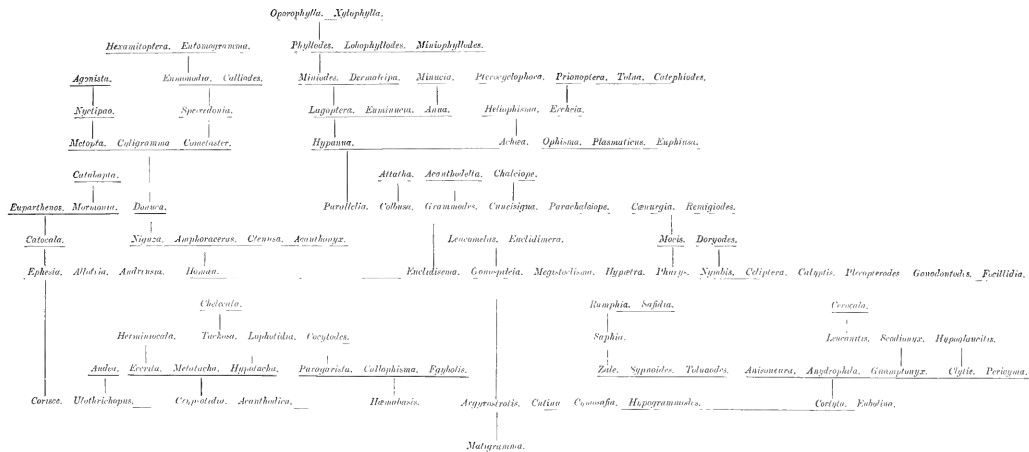
Cocytodes.

Leucanitis. Scodionyx. Hypoglaucitis.

Paragarista. Callidrophila. Gnamp-tonyx. Clytie. Pericyma.

Haortyta. Eubolina.





spined, but these can be separated from the *Catocalinæ* by having the eyes overhung by bristly cilia, which appears to be a character of greater systematic importance than the spines on the tibiæ.

The *Larvæ* are semiloopers, with the 1st two pairs of abdominal prolegs more or less aborted, the warts with single hairs, the 10th somite usually with a pair of dorsal prominences. The abortion of the anterior pairs of abdominal prolegs is undoubtedly an acquired character, and negatives the subfamily, being regarded as entirely ancestral, as many of the *Noctuinae* and the *Hyppeninae* have larvæ with all the prolegs fully developed.

Key to the Genera.

- A. Hind tibiæ spined.
 - a. Fore tibiæ spined.
 - a¹. Hind wing with the cell about one-fifth length of wing.
 - a². Wings with the termen non-crenulate ... AGONISTA, p. 267.
 - b². Wings with the termen highly crenulate... NYCTIPAO, p. 273.
 - b¹. Hind wing with the cell about one-third length of wing.
 - a². Abdomen with dorsal crests on basal segments CATABAPTA, p. 11.
 - b². Abdomen without dorsal crests.
 - a³. Abdomen dorsally clothed with woolly hair at base.
 - a⁴. Palpi with the 3rd joint thickly scaled, somewhat dilated at extremity and very long.
 - a⁵. Fore wing with the apex produced to a point XYLOPHYLLA, p. 387.
 - b⁵. Fore wing with the apex not produced MINIOPHYLLODES, p. 401.
 - b⁴. Palpi with the 3rd joint moderate and dilated by a tuft of scales at extremity.
 - a⁵. Fore wing with the inner margin strongly lobed before middle ... LOROPHYLLODES, p. 400.
 - b⁵. Fore wing with the inner margin not lobed PHYLLODES, p. 389.
 - c⁴. Palpi with the 3rd joint naked, moderate and not dilated at extremity MINIODES, p. 402.
 - d⁴. Palpi with the 3rd joint minute.
 - a⁵. Abdomen dorsally flattened and entirely clothed with woolly hair. COCYTODES, p. 258.
 - b⁵. Abdomen not dorsally flattened and clothed with woolly hair at base only OROPHYLLA, p. 386.
 - b³. Abdomen not dorsally clothed with woolly hair at base.
 - a⁴. Palpi with the 3rd joint long.
 - a⁵. Fore tibiæ fringed with long hair on outer side; fore wing with the termen evenly curved.
 - a⁶. Fore wing with the costa highly arched towards apex which is not produced METOPTA, p. 300.
 - b⁶. Fore wing with the costa highly arched towards apex which is produced and acute ENTOMOGRAMMA, p. 313.

- c*⁶. Fore wing with the costa slightly arched towards apex which is produced and acute.
*a*⁷. Hind wing with the termen strongly angled at vein 4 ... HEXAMITOPTERA, p. 312.
*b*⁷. Hind wing with the termen evenly curved ENMONODIA, p. 319.
*b*⁵. Fore tibiæ smoothly scaled.
*a*⁸. Fore wing with the termen nearly straight; veins 7, 8, 9 stalked, 10, 11 from cell, and much attenuated CYLIGRAMMA, p. 302.
*b*⁶. Fore wing with the termen evenly curved; the areole present.
*a*⁷. Palpi with the 2nd joint reaching to above vertex of head, the 3rd dilated at extremity..... CEROCALA, p. .
*b*⁷. Palpi with the 2nd joint not reaching above vertex of head, the 3rd not dilated at extremity.
*a*⁸. Thorax clothed with scales and hair mixed ... CALLIODES, p. 344.
*b*⁸. Thorax clothed with hair only .. SPEIREDONIA, p. 346.
*b*¹. Palpi with the 3rd joint short.
*a*⁵. Thorax clothed with hair and scales mixed COMETASTER, p. 362.
*b*⁵. Thorax clothed with hair only DONUCA, p. 364.
*c*¹. Hind wing with the cell half the length of wing.
*a*². Frons with transverse ridge not clothed with scales, and corneous plate below it. LOPHOTIDIA, p. 242.
*b*². Frons smooth.
*a*³. Hind wing with vein 8 approximated to the cell to middle ACANTHODELTA, p. .
*b*³. Hind wing with vein 8 anastomosing with the cell near base, then approximated to it to middle..... DORYODES, p. .
*c*³. Hind wing with vein 8 anastomosing with the cell near base, then diverging.
*a*⁴. Abdomen with dorsal series of crests. SAFIDIA, p. .
*b*⁴. Abdomen with crests on two basal segments PRIONOPTERA, p. 471.
*c*⁴. Abdomen without crests.
*a*⁵. Tibiæ fringed with long hair.
*a*⁶. Fore wing short and broad, the costa highly arched towards apex NIGUZA, p. 372.
*b*⁶. Fore wing longer and narrower, the apex more produced, the costa not highly arched towards apex AUDEA, p. 209.
*b*⁵. Tibiæ smoothly scaled.
*a*⁶. Eyes small and elliptical; fore wing short and broad..... EUCLIDIMERA, p. .
*b*⁶. Eyes large and round; fore wing longer and narrower, the apex more produced CENURGIA, p. .

- b.* Fore tibiæ not spined.
- a*¹. Hind tibiæ spined above the medial spurs.
- a*². Hind wing with the termen produced to a tail at vein 4 PTEROCYCLOPHORA, p. 466.
- b*². Hind wing with the termen produced to a slight lobe at vein 4 CTENUSA, p. 377.
- c*². Hind wing with the termen evenly curved.
- a*³. Fore tibiæ with long curved claw on outer side at extremity ACANTHONYX, p. 382.
- b*³. Fore tibiæ without claw at extremity.
- a*⁴. Abdomen with dorsal series of crests SYNNOIDES, p. .
- b*⁴. Abdomen with dorsal crests on basal segments.
- a*⁵. Palpi with the 3rd joint moderate; pro- and mesothorax with crests MORMONIA, p. 42.
- b*⁵. Palpi with the 3rd joint long; pro- and mesothorax without crests..... TOLNA, p. 475.
- c*⁵. Palpi with the 3rd joint minute; pro- and metathorax with crests; hind tibiæ of male with the medial spurs absent . ACANTHODICA, p. 249.
- c*⁴. Abdomen with basal crest only.
- a*⁵. Frons with pointed conical prominence REMIGIODES, p. .
- a*⁶. Pro- and metathorax with small crests; fore wing with scale-teeth at middle of inner margin and tornus CATEPHIODES, p. 481.
- b*⁶. Thorax without crests; fore-wing without scale-teeth at middle of inner margin and tornus ERCHETIA, p. 482.
- d*⁴. Abdomen without dorsal crests.
- a*⁵. Abdomen dorsally clothed with woolly hair at base.
- a*⁶. Thorax with dorsal ridge-like crest MINUCIA, p. 423.
- b*⁶. Thorax without ridge-like crest.
- a*⁷. Abdomen dorsally flattened.
- a*⁸. Frons with large tuft of hair above; palpi with the 3rd joint porrect ... HERMINIOCALA, p. 234.
- b*⁸. Frons with slight tuft of hair above; palpi with the 3rd joint upturned DERMALEIPA, p. 406.
- b*⁷. Abdomen not dorsally flattened.
- a*⁸. Fore wing with the apex somewhat produced and falcate HELIOPHISMA, p. 461.
- b*⁸. Fore wing with the apex not produced and falcate.
- a*⁹. Frons with tuft of hair above.
- a*¹⁰. Fore wing long and narrow ANUA, p. 425.

<i>b</i> ¹⁰ . Fore wing short and broad	GONODONTODES, p. .
<i>b</i> ⁹ . Frons without tuft of hair above; fore wing short and broad	ACHÆA, p. 496.
<i>b</i> ⁵ . Abdomen dorsally smoothly scaled.	
<i>a</i> ⁶ . Abdomen dorsally flattened ...	ECCRITA, p. 236.
<i>b</i> ⁶ . Abdomen not dorsally flattened.	
<i>a</i> ⁷ . Thorax clothed with hair and scales.	
<i>a</i> ⁸ . Fore wing with the apex produced and acute; eyes large, round.	
<i>a</i> ⁹ . Hind wing with the cell about one-third length of wing.	
<i>a</i> ¹⁰ . Frons with tuft of hair above.	
<i>a</i> ¹¹ . Fore wing with the termen oblique and hardly ex-curved	CHALCIOPE, p. .
<i>b</i> ¹¹ . Fore wing with the termen more erect and strongly ex-curved	NYMBIS, p. .
<i>b</i> ¹⁰ . Frons without tuft of hair	PHURYS, p. .
<i>b</i> ⁹ . Hind wing with the cell about half the length of wing	MOCIS, p. .
<i>b</i> ⁸ . Fore wing short and broad.	
<i>a</i> ⁹ . Eyes small, elliptical ...	LEUCOMELAS, p. .
<i>b</i> ⁹ . Eyes large, round.	
<i>a</i> ¹⁰ . Fore wing with the termen crenulate.	HYPOGLAUCITIS, p. .
<i>b</i> ¹⁰ . Fore wing with the termen not crenulate	PLECOTERODES, p. .
<i>b</i> ⁷ . Thorax clothed with hair and hair-like scales; fore wing with the apex produced and acute	GRAMMODES, p. .
<i>c</i> ⁷ . Thorax clothed with hair only; fore wing with the apex not produced and acute	CLYTIE, p. .
<i>b</i> ¹ . Hind tibiæ spined between the medial and terminal spurs only.	
<i>a</i> ² . Palpi with the third joint dilated into a rounded knob at extremity.	
<i>a</i> ³ . Abdomen with dorsal series of crests.	RAMPHIA, p. .
<i>b</i> ³ . Abdomen with dorsal crests on two basal segments	AMPHIORACERAS, p. 376.
<i>b</i> ² . Palpi with the 3rd joint not dilated at extremity.	
<i>a</i> ³ . Abdomen with dorsal series of crests.	EUPARTHENOS, p. 9.
<i>b</i> ³ . Abdomen with dorsal crest at base only.	

- a^4 . Thorax with ridge-like dorsal crest CELIPTERA, p. .
 b^4 . Metathorax with paired crests ATTATHA, p. .
 c^3 . Abdomen with dorsal ridges of hair on basal segments.
 a^4 . Thorax with dorsal ridge-like crest. EUMINUCIA, p. 421.
 b^4 . Prothorax with spreading crest; fore tibiæ with claw CHELECALA, p. 240.
 c^4 . Thorax without crests.
 a^5 . Fore wing with the apex produced and acute LAGOPTERA, p. 413.
 b^5 . Fore wing with the apex not produced and acute.
 a^6 . Fore wing broad and triangular CATOCALA, p. 58.
 b^6 . Fore wing longer and narrower.
 a^7 . Palpi with the 2nd joint reaching to vertex of head, the 3rd long; hind wing with the cell about one-third length of wing HYFANUA, p. 459.
 b^7 . Palpi with the 2nd joint reaching to middle of frons, the 3rd moderate; hind wing with the cell about half length of wing. TACHOSA, p. 241.
 d^3 . Abdomen dorsally smoothly scaled.
 a^4 . Metathorax with crest.
 a^5 . Frons with large tuft of hair; palpi with the 3rd joint long... EUBOLINA, p. .
 b^5 . Frons without tuft of hair; palpi with the 3rd joint moderate ... ANYDROPHILA, p. .
 b^4 . Metathorax with crest.
 a^5 . Palpi with the 3rd joint porrect.
 a^6 . Frons with large flattened tuft of hair above; fore wing long and narrow HYPOTACHIA, p. 243.
 b^6 . Frons with small tuft of hair; fore wing triangular EUPHUSA, p. 550.
 b^5 . Palpi with the 3rd joint up-turned.
 a^6 . Fore wing with the apex somewhat produced and acute.
 a^7 . Palpi with the 3rd joint long and acuminate; fore wing with the termen excised below apex and excurved at middle FOCILLIDIA, p. .
 b^7 . Palpi with the 3rd joint moderate, blunt; fore wing with the termen evenly curved CUNEISIGNA, p. .
 b^8 . Fore wing with the apex rounded.
 a^7 . Eyes small and elliptical ... GONOSPILEIA, p. .
 b^7 . Eyes large, round ANDREUSIA, p. 206.
B. Hind tibiæ not spined.
 a . Abdomen with dorsal series of crests.
 a^1 . Thorax clothed with hair and scales, the prothorax with spreading crests.
 a^2 . Patagia broadly dilated with scales at extremity; abdomen with very large basal crest.

- a^3 . Abdomen with the crests on medial segments large and somewhat bifid. SAFIA, p.
 b^3 . Abdomen with the crests on medial segments small..... ZALE, p. .
 b^2 . Patagia not dilated with scales at extremity.
 a^3 . Abdomen with the crests on medial segments large..... PERICYMA, p. .
 b^3 . Abdomen with the crests on medial segments small ALLOTRIA, p. 204.
 b^1 . Thorax clothed with hair and hair-like scales.
 a^2 . Metathorax with spreading crest TOLNAODES, p. .
 b^2 . Metathorax without crest CALYPTIS, p. .
 b . Abdomen with dorsal crest at base only.
 a^1 . Frons with tuft of hair above; palpi with the 3rd joint long CALLOPHISMA, p. 263.
 b^1 . Frons without tuft of hair above; palpi with the 3rd joint moderate COLBUSA, p. .
 c . Abdomen with dorsal ridges of hair on basal segments.
 a^1 . Fore tibiæ with curved claw at extremity. SCODIONYX, p. .
 b^1 . Fore tibiæ without claw at extremity.
 a^2 . Fore wing with the apex somewhat produced and acute.
 a^3 . Fore wing long and narrow, the costa not highly arched towards apex, the termen obliquely curved.
 a^4 . Prothorax with crest, metathorax without crest ULOTHIRICHOPUS, p. 220.
 b^4 . Prothorax without crest, metathorax with spreading crest HYPOGRAMMODES, p. .
 b^3 . Fore wing short and broad, the costa highly arched towards apex.
 a^4 . Fore wing with the apex strongly produced and falcate OPHISMA, p. 539.
 b^4 . Fore wing with the apex slightly produced and not falcate.
 a^5 . Fore wing with the termen excurved at vein 5 PLASMATICUS, p. 548.
 b^5 . Fore wing with the termen not excurved at vein 5 PARALLELIA, p. 551.
 b^2 . Fore wing with the apex not produced.
 a^3 . Palpi with the 2nd joint reaching to above vertex of head, the 3rd long.
 a^4 . Palpi with the 3rd joint dilated at extremity PARAGARISTA, p. 262.
 b^4 . Palpi with the 3rd joint not dilated at extremity.
 a^5 . Thorax clothed with scales and hair mixed.
 a^6 . Hind wing with the cell about one-fourth length of wing ... ANISONEURA, p. .
 b^6 . Hind wing with the cell about one-half length of wing HYPÆTRA, p. .
 b^5 . Thorax clothed with hair only ... EGYBOLIS, p. 264.
 b^3 . Palpi with the 2nd joint reaching to vertex of head, the 3rd long HEMABASIS, p. 266.
 c^3 . Palpi with the 2nd joint reaching to middle of frons, the 3rd moderate.
 a^4 . Hind wing with the termen excised between veins 6 and 2 METATACHA, p. 238.

- b*⁴. Hind wing with the termen not excised between veins 6 and 2 ... *EPHESIA*, p. 143.
- d*. Abdomen dorsally smoothly scaled and without crests.
- a*¹. Fore tibiae with claw at extremity.
- a*². Metathorax with spreading crest *LEUCANITIS*, p. .
- b*². Metathorax without crest *GNAMPTONYX*, p. .
- b*¹. Fore tibiae without claw at extremity.
- a*². Palpi with the 3rd joint porrect.
- a*³. Palpi with the 3rd joint long, slender, and somewhat dilated at extremity. *MEGISTOCLISMA*, p. .
- b*³. Palpi with the 3rd joint moderate, thickly scaled, and not dilated at extremity.
- a*⁴. Palpi with the 2nd joint bent forward at extremity and fringed above and below with hair..... *CRYSOTIDIA*, p. 246.
- b*⁴. Palpi with the 2nd joint not bent forward at extremity or fringed above by hair *CORTYTA*, p. .
- b*². Palpi with the 3rd joint upturned.
- a*³. Frons with tuft of hair above.
- a*⁴. Hind wing with the cell about one-third length of wing.
- a*⁵. Palpi with the 3rd joint long and acuminate.
- a*⁶. Palpi with the 2nd joint reaching to above vertex of head . *PARACHALCIOPE*, p. .
- b*⁶. Palpi with the 2nd joint not reaching to above vertex of head *HOMEA*, p. 384.
- b*⁵. Palpi with the 3rd joint moderate and obtuse *EUCLIDISEMA*, p. .
- b*⁴. Hind wing with the cell about half the length of wing *ARGYROSTROTIS*, p. .
- b*³. Frons without tuft of hair above.
- a*⁴. Fore wing with the apex produced and acute *CUTINA*, p. .
- b*⁴. Fore wing with the apex not produced and acute.
- a*⁵. Metathorax with depressed crest.
- a*⁶. Fore wing with the termen angled at veins 6 and 4, then oblique *CYNOSAFIA*, p. .
- b*⁶. Fore wing with the termen evenly curved *MATIGRAMMA*, p. .
- b*⁵. Metathorax without crest *CORISCE*, p. 207.

Genus **EUPARTHENOS.**

	Type.
<i>Parthenos</i> , Hübn. Verz. p. 278 (1827), nec p. 38	<i>nubilis</i> .
<i>Euparthenos</i> , Grote, Ann. Lyc. Nat. Hist. N. Y. xi. p. 301 (1876)...	<i>nubilis</i> .
<i>Calocalirrhus</i> , Andrews, Can. Ent. ix. p. 20 (1877)	<i>nubilis</i> .

Proboscis fully developed; palpi upturned, the 2nd joint reaching about to vertex of head and moderately scaled, the 3rd joint moderate; frons smooth, with tuft of hair; eyes large, round; antennae of male ciliated; thorax clothed with hair-like scales, the pro-meso- and metathorax with spreading crests, large on mesothorax; tibiae moderately fringed with hair, the mid tibiae of male dilated with a fold containing a tuft of long hair, the mid tibiae spined, the hind tibiae spined between the medial and terminal spurs only;

abdomen with large dorsal crests except on terminal segments. Fore wing with the apex rectangular, the termen evenly curved, crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the cell nearly half the length of wing; veins 3, 4 from angle; 5 fully developed from just above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

7128. *Euparthenos nubilis*.

Parthenos nubilis, Hübn. Samml. Ex. Schmett. ii. Lep. iv. Noct. iii. (1816);
Smith, Cat. Noct. N. Am. p. 330.

Parthenos apache, Poling, Can. Ent. xxxiii. p. 129 (1901).

Catocala fasciata, Beutenm. Bull. Am. Mus. Nat. Hist. xxiii. p. 150 (1907).

Head and thorax red-brown mixed with grey; tegulæ and prothoracic crest with dark lines defined by white at tips; patagia with white lines at middle and tips; tarsi dark brown ringed with whitish; abdomen rufous, the crests tipped with grey, the ventral surface whitish tinged with rufous. Fore wing brownish grey suffused with fuscous brown; subbasal line double, blackish, dentate, from costa to vein 1; antemedial line double, blackish

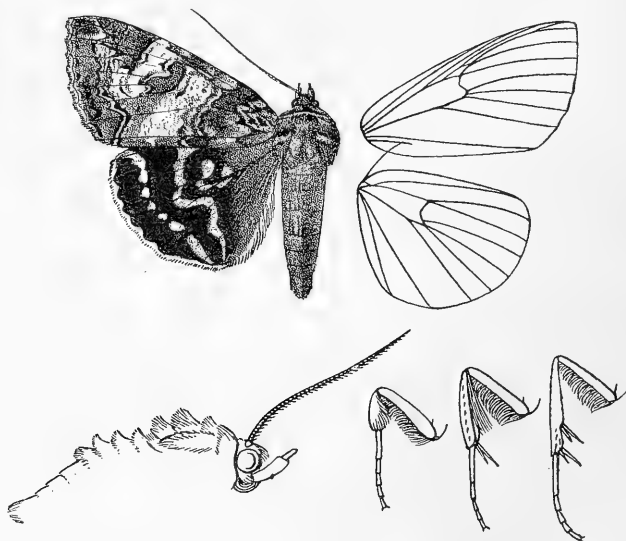


Fig. 2.—*Euparthenos nubilis*, ♂. 1.

filled in with whitish, oblique, sinuous, angled inwards at vein 1, excurved above inner margin along which it is bent inwards and then forming a hoop-shaped mark enclosing a brown spot on the margin; a black point in middle of cell; reniform obscurely defined by blackish, a narrow oblique lunule often with its lower point much dilated; postmedial line very indistinctly double, filled in with white towards costa, oblique and sinuous to vein 4, below

vein 3 bent upwards to inner side of reniform and subcostal nervure where it is filled in with white, then oblique and sinuous to inner margin, some white points beyond it on costa; subterminal line whitish defined on each side slightly by rufous and blackish, with a short black streak before it below vein 8 and longer streak below 7, angled inwards below vein 8, then slightly sinuous to below vein 4, angled inwards at vein 2 and ending at tornus; a crenulate black terminal line; cilia with fine black line near base and pale rufous tips. Hind wing orange-yellow, the basal and inner areas suffused with red-brown; a narrow oblique black discoidal lunule; a narrow black medial band, oblique to vein 4, and expanding into spots at discal fold and beyond lower angle of cell, then incurved and ending at tornus; a black postmedial band expanding at costa, excurved to vein 4, angled inwards at vein 2 and oblique to termen near tornus; a black terminal band with black streaks before it on veins 6 to 3, its outer edge crenulate leaving small orange terminal spots in the interspaces; cilia pale yellow with a blackish line near base. Underside of fore wing orange-yellow, the costa irrorated with red-brown, the basal half of inner area fuscous, a small black spot in middle of cell, a black postmedial band incurved beyond the cell, then oblique to inner margin near tornus, a white postmedial mark on costa followed by white points, terminal area brownish streaked with black, broad at costa, the termen white towards apex with a series of black points before it; hind wing orange striated with red-brown, an oblique black discoidal lunule, postmedial narrow band, oblique to vein 4, then incurved and excurved above inner margin, an indistinct sinuous orange subterminal line.

Ab. 1. *fasciata*. Fore wing with the medial area suffused with whitish.

Ab. 2. *apache*. Hind wing with the terminal band reduced to black scales on the veins.—W. States.

Hab. CANADA, U.S.A., East of Rocky Mts., 5 ♀, Massachusetts, Beverley, 2 ♂, New York, Evans Center (*Grote*) 1 ♂, 3 ♀, New Jersey, 2 ♀, Colorado. *Exp.* 70–82 millim.

Larva. Dark brown. Food-plant: *Robinia pseudacacia*.

Genus CATABAPTA.

Type.

Catabapta, Hulst, Bull. Brooklyn Ent. Soc. vii. p. 49 (1884).. *antinympa*.

Proboscis fully developed; palpi upturned, the 2nd joint reaching to about middle of frons and rather broadly scaled, the 3rd moderate and moderately scaled; frons smooth, with tuft of hair above; eyes large, round; antennæ of male ciliated; thorax clothed with hair and hair-like scales, the pro- and metathorax with slight spreading crests, the mesothorax with small paired crests; tibiæ moderately fringed with hair and all the tibiæ spined; the mid tibiæ of male dilated with a fold containing a tuft of long hair; abdomen with dorsal ridges of hair and hairy crests on three basal segments. Fore wing triangular, the apex rounded, the termen evenly curved, crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing

with 8 to form the areole; 11 from cell. Hind wing with the cell about one-third length of wing; veins 3 and 4 from angle of cell; 5 fully developed from just above angle of cell; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

A. Hind wing black-brown.

- a. Fore wing with the ground-colour white, the reniform prominent, red-brown defined by black *sappho*.
- b. Fore wing with the ground-colour grey or brown.
 - a¹. Hind wing with the cilia dark except at apex.
 - a². Fore wing pale brownish grey, the lines fine.
 - a³. Wings on underside white at base *judith*.
 - b³. Wings on underside not white at base *orba*.
 - b². Fore wing darker, the lines stronger.
 - a³. Fore wing with the inner area not suffused with black.
 - a⁴. Fore wing with the postmedial line slightly ex-curved below vein 1 *residua*.
 - b⁴. Fore wing with the postmedial line strongly ex-curved below vein 1 *angusi*.
 - b³. Fore wing with the inner area suffused with black .. *insolabilis*.
- b¹. Hind wing with the cilia white, chequered with brown at veins 6 to 2.
 - a². Fore wing grey uniformly suffused with dark brown.
 - a³. Fore wing without red-brown band beyond the postmedial line, the subterminal line diffused *obscura*.
 - b³. Fore wing with red-brown band beyond the post-medial line, the subterminal line not diffused *agrippina*.
 - b². Fore wing grey variegated with brown and black.
 - a³. Fore wing with the ground-colour blue-grey.
 - a⁴. Fore wing without curved black shade from costa beyond middle to termen below apex.
 - a⁵. Fore wing without oblique white shade from costa beyond the antemedial line to median nervure *lacrymosa*.
 - b⁵. Fore wing with oblique white shade from costa beyond the antemedial line to median nervure *dejecta*.
 - b⁴. Fore wing with curved black shade from costa beyond middle to termen below apex.
 - a⁵. Fore wing with blackish shade in submedian interspace *vidua*.
 - b⁵. Fore wing without blackish shade in submedian interspace *viduata*.
 - b³. Fore wing grey-white tinged with red-brown.
 - a⁴. Fore wing with oblique black shade from termen below apex.
 - a⁵. Fore wing with the antemedial line double filled in with white *relecta*.
 - b⁵. Fore wing with the antemedial line single and faintly defined on inner side by whitish *febilis*.
 - b⁴. Fore wing without oblique black shade from termen below apex *robinsoni*.

B. Hind wing yellow.

- a. Fore wing with the postmedial line ex-curved below costa but not angled outwards above vein 5 *badia*.
- b. Fore wing with the postmedial line bent outwards below costa and angled outwards above vein 5.
 - a¹. Fore wing on underside with the basal half suffused with yellow, the postmedial band whitish; hind wing with the costal area whitish *innubens*.

- b*¹. Fore wing on underside with the basal area and post-medial band yellow; hind wing with the costal area ochreous.
*a*². Hind wing deep orange-yellow.
*a*³. Fore wing nearly uniform deep red-brown..... *muliercula*.
*b*³. Fore wing almost entirely suffused with grey..... *paleogama*.
*b*². Hind wing brighter golden yellow.
*a*³. Fore wing with prominent dark band beyond the postmedial line *cæleb*s.
*b*³. Fore wing without prominent dark band beyond the postmedial line.
*a*⁴. Fore wing nearly uniform black-brown.
*a*⁵. Fore wing with the lines distinct *antinymphea*.
*b*⁵. Fore wing with the lines almost obsolete *denussa*.
*b*⁴. Fore wing nearly uniform fuscous brown *consors*.
*a*⁴. Fore wing nearly uniform grey-brown..... *serena*.
*d*⁴. Fore wing much more variegated and not nearly uniform in colour.
*a*⁵. Fore wing with the basal area strongly suffused with black *nebulosa*.
*b*⁵. Fore wing with the basal area not strongly suffused with black.
*a*⁶. Fore wing almost entirely suffused with red-brown *piatrix*.
*b*⁶. Fore wing much more variegated with white and grey.
*a*⁷. Fore wing with the basal area darker than the ground-colour..... *dionyza*.
*b*⁷. Fore wing with the basal area not darker than the ground-colour.
*a*⁸. Fore wing strongly suffused with white.
*a*⁹. Fore wing with the postmedial line strongly angled outwards above and below vein 5 *submata*.
*b*⁹. Fore wing with the postmedial line slightly angled outwards above and below vein 5 *habilis*.
*b*⁸. Fore wing slightly suffused with white.
*a*⁹. Fore wing not tinged with olive *neogama*.
*b*⁹. Fore wing tinged with olive *euphemia*.

7129. *Catabapta sappho*. (Plate CXCII. fig. 1.)

Catocala sappho, Streck. Lep. Rhop. & Het. p. 95, pl. xi. f. 4 (1874); Smith, Cat. Noct. N. Am. p. 352.

♂. Head and thorax white irrorated with red-brown; palpi with the 2nd and 3rd joints dark brown towards tips; tegulae with red-brown lines at middle and near tips; fore and mid tibiae and the tarsi banded with blackish; abdomen reddish brown with some whitish at base and in anal tuft, the ventral surface white. Fore wing white sparsely irrorated with brown; subbasal line black, angled outwards below costa and ending at submedian fold; ante-medial line very indistinct, double filled in with white, the outer line with large black-brown spot at costa, then oblique to submedian fold and slightly angled inwards on median nervure, incurved at vein 1; reniform very large and irregularly rounded,

bright red-brown defined by dark brown and with dark brown patch above it on costa; a faint oblique sinuous white line from lower angle of cell to inner margin; postmedial line indistinct, double, with dark spots at costa, bent outwards below costa, oblique and sinuous to just above vein 5 where it is acutely angled outwards, then minutely waved and angled outwards above vein 1; a faint dentate brown subterminal line, oblique from costa to vein 6; a slight wedge-shaped patch of red-brown suffusion from termen below apex; a series of dark points with white points beyond them connected with a crenulate terminal line; cilia red-brown, whitish at tips. Hind wing black-brown with some whitish hair at base; cilia white except at base towards tornus. Underside of fore wing black-brown, some whitish at base, an oblique whitish medial patch from subcostal nervure to vein 2, a narrow curved postmedial band suffused with brown on inner half, cilia white intersected with brown; hind wing black-brown, the basal and inner areas whitish, a narrow white postmedial band, oblique from costa to vein 4 and ending at vein 1.

Hab. U.S.A., Central and Southern States, Illinois, Texas, 2 ♂.
Exp. 76 millim.

7130. *Catabapta judith*. (Plate CXCII. fig. 2.)

Catocala judith, Streck, Lep. Rhop. & Het. p. 95, pl. xi. f. 5 (1874);
Kusnezov, Rev. Russ. Ent. iii. p. 166, figs. 2 *a*, *b*; Smith, Cat. Noct.
N. Am. p. 350.
Catocala levelletii, Grote, Trans. Am. Ent. Soc. v. p. 95 (1874).

Head and thorax grey tinged with brown, the tegulæ with black lines at middle and near tips, the patagia with some black scales near upper edge; palpi black, white at base, the 3rd joint irrorated with white; frons black at sides; antennæ blackish; pectus white; legs white irrorated with brown, the tarsi black ringed with white; abdomen grey, suffused with fuscous except at base, the anal tuft and ventral surface white. Fore wing grey tinged with brown and slightly irrorated with dark brown; subbasal line blackish, angled outwards below costa and ending at submedian fold; ante-medial line brownish, oblique, waved, expanding into a spot at costa; reniform with brownish centre and whitish annulus defined by some black scales, an oblique brown bar above it from costa; postmedial line black, expanding into a slight spot at costa, bent outwards below costa then dentate, oblique to below vein 6 where it is produced to an acute tooth, then inwardly oblique, at vein 2 running inwards and enclosing a spot below end of cell and strongly angled inwards above vein 1; subterminal line indistinct, whitish, dentate, oblique to below vein 6; the veins of terminal area with slight dark streaks; a series of dark points before termen slightly defined on outer side by whitish. Hind wing black-brown, the inner margin with some white hair; cilia brown mixed with

whitish except towards tornus. Underside of fore wing black-brown, the basal area white except towards costa, an oblique whitish patch in and below extremity of cell, a diffused whitish postmedial line, oblique to below vein 4, the apex brownish white; hind wing with the basal area white, a black-brown medial band defined on outer side by white, oblique from middle of costa to beyond lower angle of cell and obsolete below vein 1, the terminal area black-brown.

Hab. U.S.A., Eastern, Middle, and Central States, Ohio, 1 ♂, 1 ♀ type *levettei*. *Exp.* 54-56 millim.

Larva. Dodge, Can. Ent. xxxiii. p. 224 (1901).

Black, closely reticulated throughout with greenish white, the ventral surface greenish white, each segment with a dull brownish spot; tubercles white; cervical and anal plates black; head greyish streaked with pale brown, the streaks uniting on the summit of each lobe where they form a longitudinal streak; mouth-parts black and with a black stripe from each side running to a point on the cheek. Food-plant: Hickory.

Pupa reddish with a thin whitish bloom.

*7131. *Catabapta orba*.

Catocala orba, Kusnezov, Rev. Russ. Ent. iii. p. 166, figs. 1, *a*, *b* (1903); French, Can. Ent. xxxv. p. 343.

♂. Head and thorax whitish grey; tegulae, patagia in front and prothorax dark brown; tibiae and tarsi ringed with black; abdomen dark grey. Fore wing pale grey, the basal and costal areas suffused with white; subbasal line fine, dark, dentate, from costa to submedian fold; antemedial line indistinct, forming a small spot at costa, then oblique, minutely waved; reniform dark grey defined by white, an oblique dark bar above it from costa; postmedial line dark, forming a small spot at costa, slightly bent outwards below costa, then oblique and sinuous, angled outwards above and below vein 5, then almost obsolete, inwardly oblique and dentate; subterminal line whitish, dentate, oblique from costa to vein 6, a faint brown shade between it and the postmedial line; a terminal series of slight black lunules. Hind wing black, the base clothed with brownish grey hair; cilia dark grey, brownish grey towards apex. Underside black; fore wing with some greyish at base, postmedial band whitish, curved, a white spot on its outer edge at costa, apical area whitish irrorated with grey; hind wing grey-black, the base and costa paler, a very indistinct pale medial band excurved at middle, cilia pale grey with a dark line through them, whitish towards apex.

Hab. U.S.A., Texas. *Exp.* 58 millim. This species is unknown to me.

7132. *Catabapta residua*. (Plate CXCI. fig. 3.)

Catocala residua, Grote, Proc. Boston Soc. N. H. xvi. p. 242 (1874); id. Bull. Buff. Soc. Nat. Sci. iii. p. 187, pl. v. f. 4; Smith, Cat. Noct. N. Am. p. 353.

Head and thorax brown mixed with some grey; pectus white and brown; abdomen rather darker brown, the ventral surface white except at extremity. Fore wing brown irrorated with grey especially on terminal area; subbasal line slight, dark, angled outwards below costa and ending at submedian fold; antemedial line dark, oblique, sinuous; reniform elliptical, faintly defined by brown; an obliquely curved mark defined by brown below end of cell formed by a sinus of the postmedial line, which is dark, bent outwards below costa, then oblique and sinuous, acutely angled above and below vein 5, then dentate, at vein 2 forming the sinus below end of cell and bent inwards at vein 1; subterminal line diffused, grey-white defined on outer side by brown, dentate, oblique from costa to below vein 6, where it is met by a slight oblique brown shade from termen below apex; a series of dark points slightly defined on outer side by whitish before termen. Hind wing black-brown; cilia whitish at apex, then whitish at tips. Underside of fore wing black-brown, a white patch at base, an oblique whitish medial patch from below costa to vein 2, postmedial band narrow, white towards costa, then whitish suffused with brown and oblique to vein 4, some white on apical part of costa, the cilia with white spots at base; hind wing with the basal and inner areas white, the rest of wing black-brown, a narrow white postmedial band oblique and sinuous to vein 4 and ending at tornus.

Hab. U.S.A., Eastern States, New York, 2 ♀ type, Ohio, 1 ♀, Columbus, 1 ♂. *Exp.* 72-80 millim.

7133. *Catabapta angusi*. (Plate CXCI. fig. 4.)

Catocala angusi, Grote, Can. Ent. viii. p. 229 (1876); id. Bull. Buff. Soc. Nat. Sci. iii. p. 188, pl. v. figs. 1-2; Smith, Cat. Noct. N. Am. p. 553.
Catocala lucetta, H. Edw. French, Catocalæ of Illinois, p. 4 (1882).
Catocala edna, Beutenm. Bull. Am. Mus. Nat. Hist. xxiii. p. 150 (1907).

Head and thorax grey mixed with red-brown, the tegulæ with dark line near tips; palpi and sides of frons black, the former with some white at base; shoulders with black streaks; pectus white; tarsi banded with black; abdomen fuscous brown, the ventral surface white irrorated with brown and suffused with brown at extremity. Fore wing grey suffused with red-brown and irrorated with black-brown; subbasal line blackish, sinuous, from costa to submedian fold; antemedial line blackish slightly defined on inner side by grey, oblique, sinuous; reniform greyish obscurely defined by dark brown, its centre also defined by brown, elliptical, an oblique dark shade above it from costa; an obliquely curved mark defined by

dark brown below end of cell confluent with the postmedial line, which is blackish, bent outwards below costa, then oblique and sinuous, acutely angled outwards above and below vein 5, then waved, at vein 2 forming the sinus below end of cell and strongly angled inwards at vein 1; subterminal line indistinct, greyish slightly defined on outer side by brown, waved, oblique from costa to below vein 6 where it is met by a faint oblique shade from termen below apex; a series of blackish points before termen defined on outer side by white. Hind wing black-brown with a cupreous tinge. Underside of fore wing black-brown, a bluish white patch at base, a small whitish patch in and below end of cell, postmedial band narrow, pale, whitish at costa, oblique from costa to vein 4, some whitish on apical part of costa; cilia chequered whitish and brown; hind wing with the basal and inner areas bluish white, the rest of wing black-brown, postmedial band narrow, whitish, oblique and sinuous to vein 4 and ending at tornus.

Ab. 1. *edna*. Fore wing with strong sinuous black streak below the cell to beyond the antemedial line.

Ab. 2. *lucetta*. Similar, but fore wing with the basal streak more diffused and a blackish fascia from termen below apex to the reniform, its upper edge angled at vein 6 and its lower edge diffused.

Hab. U.S.A., Middle, Central, and Southern States, New York, 4 ♂, 2 ♀ type. *Exp.* 70-78 millim.

Larva. Food-plant: Hickory,

7134. *Catabapta insolabilis*. (Plate CXCLII. fig. 5.)

Catocala insolabilis, Guen. Noct. iii. p. 94 (1852); Streck. Lep. Rhop. & Het. p. 33, pl. v. f. 1; Grote, Bull. Soc. Nat. Sci. iii. p. 187, pl. v. f. 3; Smith, Cat. Noct. N. Am. p. 353.

Head and thorax grey mixed with reddish brown and dark brown, the tegulae whitish at base and with dark medial line; palpi fuscous white at base and with white ring at extremity of 2nd joint; frons black at sides; shoulders with black streaks; pectus and legs white, the latter irrorated with brown, the fore and mid tibiae and the tarsi with black bands; abdomen fuscous brown, the ventral surface white. Fore wing blue-grey tinged in parts with red-brown and thickly irrorated with dark brown, the inner area strongly suffused with dark brown; subbasal line black-brown, excurved below costa and ending at submedian fold; antemedial line double, the inner line indistinct, oblique, waved; reniform small, elliptical, red-brown faintly defined by dark brown and with an oblique red-brown shade above it from costa; an indistinct spot defined by dark brown below end of cell, connected with the postmedial line, which is black-brown, bent outwards below costa, then oblique and sinuous, acutely angled outwards

above and below vein 5, then waved, at vein 2 forming the sinus below end of cell, strongly angled inwards at vein 1 where there is a dark brown streak from it to the subterminal line, which is pale grey defined on outer side by brown, waved, oblique from costa to below vein 6 where it is met by a faint oblique shade from termen below apex; a series of dark points before termen; the veins of terminal area with slight dark streaks. Hind wing black-brown with a cupreous gloss; cilia white at the tips towards apex. Underside of fore wing black-brown, a pure white patch at base, faint traces of a small medial oblique whitish mark from subcostal nervure to vein 2, an indistinct pale postmedial line with white spot at costa, oblique from costa to vein 4, some grey at apex, cilia with a series of white spots at base; hind wing with the basal and inner areas pure white, the rest of wing black-brown, a whitish postmedial line, oblique and sinuous to vein 4 and ending at tornus, cilia with some whitish.

Ab. 1. ♀. Smaller, 66 millim.; the head, thorax, and fore wing much browner.

Hab. CANADA; U.S.A., Middle, Central, and Southern States, New York, 4 ♂, 2 ♀, Kansas (*Snow*), 1 ♂, 1 ♀. *Exp.* 74–82 millim.

Larva. Beutenm. Bull. Am. Mus. Nat. Hist. xix. p. 509.

Violaceous grey irrorated with black forming subdorsal and lateral stripes; warts prominent, red; 8th somite not humped; 11th somite with two short blunt prominences directed backwards; sides with rather long grey filaments; ventral surface dirty white tinged with reddish, each somite with a black patch; head whitish with violaceous grey lines connected by fine reticulations. Food-plant: Hickory.

7135. *Catabapta obscura*. (Plate CXCII. fig. 6.)

Catocala obscura, Streck. Lep. Rhop. & Het. p. 19, pl. iii. f. 4 (1873);

Smith, Cat. Noct. N. Am. p. 353.

Catocala simulatilis, Grote, Trans. Am. Ent. Soc. v. p. 94 (1874).

Head and thorax brown mixed with some grey; pectus white; abdomen rather darker brown, the ventral surface white. Fore wing brown tinged with grey and irrorated with dark brown; subbasal line indistinct, blackish, angled outwards below costa and ending at submedian fold; antemedial line indistinct, dark, oblique, sinuous; reniform a small faint brownish lunule with whitish striga in centre; an oblique brown bar from middle of costa to reniform; traces of a small spot defined by brown below end of cell; postmedial line dark, bent outwards below costa, then dentate, oblique, angled outwards above and below vein 5 and strongly inwards on vein 1; subterminal line diffused, grey-white faintly defined on outer side by brown, slightly waved, oblique from costa to below vein 6; a series of dark points defined on outer side by

whitish before termen. Hind wing black-brown; cilia pure white with some brown at base, brownish towards tornus. Underside of fore wing black-brown, the base white, an oblique whitish medial patch from below costa to vein 2, postmedial band narrow, white, oblique to vein 4 and obsolescent towards inner margin, some white at apex, cilia white intersected with brown and brownish at tips; hind wing with the basal and inner areas white, the rest of wing black-brown, a white postmedial band oblique and sinuous to vein 4 and ending at tornus.

Ab. 1. *simulatis*. Fore wing with the ante- and postmedial lines more prominent and black.

Hab. CANADA; U.S.A., Eastern, Middle, and Central States, New York, 2 ♂, 2 ♀ type *simulatis*, Ohio, 2 ♂ type, Colorado. *Exp.* 66-74 millim.

Larva. Kellicott, Ent. Am. ii. p. 45; Dodge, Can. Ent. xxxiii. p. 225.

Fuscous grey; dorsal stripe interrupted on 4th to 9th somites by curved black patches enclosing white conical patches; tubercles small and white, no filaments; somite 11 slightly humped and edged behind by black; ventral surface greenish white with large black spots except on thoracic and 8th and 9th somites; head whitish with pale brown markings and small blotch at corner of jaws. Food-plant: Hickory.

7136. *Catabapta agrippina*. (Plate CXCH. fig. 7.)

Catocala agrippina, Streck, Lep. Rhop. & Het. p. 95, pl. xi. figs. 1-3 (1874); Smith, Cat. Noct. N. Am. p. 352.

Catocala subviridis, Hary, Can. Ent. ix. p. 193 (1877).

Catocala barnesii, Fre. ch, Can. Ent. xxxii. p. 190 (1900).

Head and tegulae red-brown mixed with some white, the tegulae with red-brown medial line; palpi with some white at base and at extremity of 2nd joint which is dark towards extremity; thorax reddish brown mixed with grey; pectus white; legs white irrorated with brown, the fore tibiae and the tarsi with dark bands; abdomen greyish brown, the ventral surface whitish. Fore wing grey irrorated and in parts suffused with red-brown; subbasal line black-brown, angled outwards below costa and ending at submedian fold; antemedial line indistinctly double, the inner line faint, the outer black-brown to submedian fold, angled outwards below costa, then oblique and sinuous and angled inwards at vein 1; reniform red-brown faintly defined by darker brown, rounded; an oblique dark bar from middle of costa and indistinct pale elliptical spot below end of cell defined on inner side by black-brown, and connected with the postmedial line which is black-brown, strongly bent outwards below costa, then oblique and sinuous, acutely angled outwards above and below vein 5, then incurved, waved and strongly angled inwards on vein 1, the area beyond it rufous except at costa to the dentate grey subterminal line defined on

outer side by dark brown and oblique from costa to vein 6; a series of blackish points before termen defined on outer side by white points. Hind wing black-brown with some greyish hair on basal and inner areas; cilia creamy white intersected with brown. Underside of fore wing black-brown, the basal area whitish, an oblique whitish medial patch from subcostal nervure to vein 2, a narrow whitish postmedial band oblique from costa to vein 4 and obsolete below submedian fold, terminal area greyish, the cilia with a series of white spots at base; hind wing black-brown, the basal and inner areas whitish, a narrow sinuous whitish postmedial band, oblique from costa to vein 4, some whitish at extreme apex.

Ab. 1. *subviridis*. Head and thorax more strongly irrorated with white; fore wing suffused with bronze-green and without any of the red-brown tones, the spot below end of cell small and separated from the postmedial line.

Hab. U.S.A., Middle and Southern States, Texas (*Belfrage*), 2 ♂, 1 ♀, Dallas (*Boll*), 1 ♂ type *subviridis*. Exp. 82 millim.

7137. *Catabapta lacrymosa*. (Plate CXCII. fig. 8.)

Catocala lacrymosa, Guen. Noct. iii. p. 93 (1852); Streck, Lep. Rhop. & Het. p. 18, pl. iii. f. 3; Smith, Cat. Noct. N. Am. p. 352.

Catocala ulatume, Streck, Lep. Rhop. & Het. p. 132 (1877).

Catocala paulina, H. Edwards, Bull. Brooklyn Ent. Soc. iii. p. 54 (1880).

Catocala evelina, French, Papilio, i. p. 110 (1881).

Catocala zelica, French, Papilio, i. p. 111 (1881).

Catocala emilia, H. Edwards, Papilio, i. p. 117 (1881).

Head and thorax black-brown mixed with white and some red-brown; palpi white at base; tegulæ with dark lines at middle and tips; pectus white; legs white irrorated with red-brown, the fore tibiæ and the tarsi banded with blackish; abdomen reddish brown tinged with grey, the ventral surface white except at extremity. Fore wing grey-white, thickly irrorated and in parts suffused with red-brown; subbasal line black slightly defined on outer side by white, angled outwards below costa and ending at submedian fold; antemedial line double, black-brown filled in with whitish, the outer line with dark brown spot at costa, oblique, waved, angled inwards at vein 1; reniform large, with red-brown centre with whitish lunule on it and white annulus defined by black-brown, its outer edge irregular; a small elliptical whitish spot defined by black-brown below end of cell; postmedial line black slightly defined on outer side by white, bent outwards below costa, then oblique and sinuous, acutely angled outwards above and below vein 5, then dentate and strongly angled inwards above vein 1, the area beyond it red-brown to the subterminal line, which is whitish defined on outer side by black-brown, oblique and sinuous to vein 6, then dentate; a series of black points before termen defined on outer side by white; cilia red-brown intersected by whitish at tips. Hind wing black-brown, the hair at base and on inner area greyish; cilia pure white except towards tornus, intersected with black-

brown to vein 2. Underside of fore wing black-brown, the terminal area greyish, the basal area white, an oblique white medial patch from subcostal nervure to vein 2, a narrow white postmedial band, oblique to vein 4 and obsolescent below vein 2, cilia with a series of white spots at base; hind wing black-brown, the basal and inner areas white, a rather narrow sinuous white postmedial band oblique to vein 4.

Ab. 1. *ulalume*. Fore wing less strongly irrorated with brown, the lines more distinct.

Ab. 2. *zelira*. Fore wing with black bands before the antemedial line and beyond the postmedial line.

Ab. 3. *paulina*. Fore wing suffused with blackish to the post-medial line.

Ab. 4. *evelina*. Fore wing with the basal and terminal areas and the inner half almost or entirely blackish.

Hab. U.S.A., Eastern and Southern States, New York, 2 ♂, 3 ♀, Ohio (*Drury*), 1 ♂, 1 ♀. *Exp.* 80-86 millim.

Larva. Food-plants: probably Oak and Walnut.

7138. *Catabapta dejecta*. (Plate CXVII. fig. 9.)

Catocala dejecta, Streck. Bull. Brooklyn Ent. Soc. ii. p. 97 (1880); Smith Cat. Noct. N. Am. p. 351.

♂. Head and thorax grey-white mixed with black-brown, the vertex of head, tegulae, and prothoracic crest with some rufous; palpi white at base, blackish at tips; sides of frons with black spots; pectus white; legs white mixed with brown, the tarsi banded with brown; abdomen fuscous black, the base grey, the ventral surface white with slight brown segmental lines. Fore wing bluish grey thickly irrorated with fuscous; subbasal line black, angled outwards below costa and inwards in cell, ending at submedian fold; antemedial line black, double, the inner line very indistinct, waved, oblique to submedian fold, then more erect, a quadrate grey-white patch beyond it from costa to median nervure; reniform defined by blackish and somewhat constricted at middle, some black-brown in centre; a pear-shaped grey-white spot defined by black below end of cell, connected with the postmedial line, which is black, bent outwards below costa, oblique and sinuous to vein 6, acutely dentate outwards above and below vein 5, then incurved and waved and strongly angled outwards in submedian fold where there is a black streak before it, a sinuous black shade beyond it from costa to vein 6; a very indistinct waved subterminal line with a slight blackish mark beyond it above vein 6; a series of minute black spots before termen. Hind wing black-brown; cilia white with slight blackish marks at the extremities of the veins. Underside of fore wing black-brown, the base white, an oblique whitish medial band from below costa to vein 2 and narrower postmedial band from costa to below vein 3, the apex greyish; hind wing white, a black medial band, oblique and sinuous

from costa to beyond lower angle of cell, the terminal area broadly blackish.

Hab. U.S.A., Eastern, Middle, and Central States, Connecticut, East R. (*Ely*), 1 ♂. *Exp.* 7½ millim.

7139. *Catabapta vidua*. (Plate CXCII. fig. 10.)

Phalæna vidua, Smith & Abbot, Ins. Georgia, ii. p. 181, pl. 91 (1797);

Smith, Cat. Noct. N. Am. p. 351.

Catocala desperata, Guen. Noct. iii. p. 95 (1852); Streck. Lep. Rhop. & Het. p. 33, pl. v. f. 2.

Head and thorax grey mixed with dark brown; palpi white at base, the extremity of 2nd joint and sides of frons dark brown; tegulæ with blackish line near tips which are white; prothoracic crest dark brown tipped with white; patagia with blackish streak on outer edge; pectus white; legs white irrorated with brown, the fore tibiæ at extremity and mid tibiæ at middle with black bands, the tarsi banded black and white; abdomen greyish brown, the ventral surface brownish white. Fore wing pale grey tinged in parts with red-brown and irrorated with black-brown; a diffused black-brown fascia in submedian interspace from base to subterminal line; subbasal line fine, black, sinuous, from costa to submedian fold; antemedial line double, black-brown filled in with grey, the outer line strong from costa to submedian fold, angled outwards below costa, then oblique, sinuous; reniform whitish defined by black-brown and its centre by dark brown, large and irregularly elliptical; a diffused oblique black-brown shade from middle of costa to subterminal line below vein 5 where it is met by an oblique irregular black-brown fascia from termen below apex; a pale oblique pear-shaped spot defined by black below end of cell, formed by a sinus of the postmedial line, which is black slightly defined on outer side by whitish, bent outwards below costa, then oblique and sinuous, acutely angled outwards above and below vein 5, then dentate, at vein 2 forming the sinus below end of cell, then strongly angled outwards at submedian fold and inwards at vein 1, a black streak from it to the subterminal line in submedian fold; subterminal line whitish defined on outer side by brown, dentate, oblique from costa to below vein 6; a series of blackish points before termen defined on outer side by white. Hind wing black-brown with some greyish hair at base; cilia pure white. Underside of fore wing black-brown, the termen greyish expanding towards apex which is whitish, the base whitish, an oblique whitish medial patch from subcostal nervure to vein 2, postmedial band white, oblique from costa to vein 4 and obsolescent towards inner margin, cilia white, brownish at tips; hind wing with the basal and inner areas whitish suffused with brown, the rest of wing black-brown, postmedial band white, oblique and sinuous from costa to vein 4 and ending on inner margin just above tornus.

Hab. CANADA; U.S.A., Eastern, Central, and Southern States, New York, 2 ♂, 2 ♀, Florida. *Exp.* 84-96 millim.

Larva. French, Can. Ent. xx. p. 28.

Greenish grey with many black lines, the sides whiter; each somite with slight protuberances; head grey, edged with black behind. Food-plants: Oak, Hickory, Walnut.

7140. *Catabapta viduata*. (Plate CXCI. fig. 1.)

Catocala vidua, Guen. Noct. iii. p. 94 (1852), nec Abbot.

Catocala viduata, Guen. Noct. iii. p. 400 (1852); Streck. Lep. Rhop. & Het. p. 17, pl. iii. f. 2; Dyar, Cat. Lep. N. Am. p. 224.

Catabapta maestosa, Hulst. Bull. Brooklyn Ent. Soc. vii. p. 53 (1884); Smith, Cat. Noct. N. Am. p. 352.

Catocala gueneoi, Grote, Cat. Ent. xix. p. 115 (1887).

Catocala moderna, Grote, Cat. Ent. xxxii. p. 191 (1900); Dyar, Cat. Lep. N. Am. p. 224.

Head and thorax grey mixed with dark brown; palpi white at base, the extremity of 2nd joint and sides of frons brown; tegulae with red-brown line near base, blackish line at middle and dark brown band at tips; patagia with some blackish scales near upper edge; pectus white; legs white irrorated with brown, the extremity of fore tibiae and the tarsi banded black-brown and white; abdomen grey tinged with brown, the ventral surface brownish white. Fore wing grey irrorated with red-brown and dark brown; subbasal line slight, dark brown, angled outwards on subcostal nervure and ending at submedian fold in which there is a short black-brown streak beyond it; antemedial line dark brown defined on inner side by whitish, strong towards costa, angled outwards below costa, then oblique, sinuous, a short dark streak before it below median nervure; reniform pale rufous with faint whitish annulus, large and irregularly rounded; a diffused oblique black-brown shade from middle of costa to subterminal line below vein 5 where it is met by a diffused oblique black-brown shade from termen below apex; an oblique pear-shaped pale grey spot defined by brown below end of cell, connected with the postmedial line, which is black-brown slightly defined on outer side by whitish, very oblique and sinuous towards costa, acutely angled outwards above and below vein 5, then dentate and strongly angled inwards on veins 2 and 1; subterminal line whitish defined on outer side by brown, dentate, oblique from costa to below vein 7; a series of blackish points before termen defined on outer side by white; the veins of terminal area with slight blackish streaks. Hind wing black-brown with some greyish hair on basal and inner areas; cilia white with series of black-brown spots at base from below apex to vein 2. Under-side of fore wing black-brown, the terminal area grey expanding towards apex, the basal area and basal half of costal area whitish, an oblique medial whitish band with dentate inner edge from the costal area to vein 2, a postmedial whitish band expanding at costa, then obliquely incurved and with dentate outer edge to below vein 4, then erect and obsolescent, cilia white at base, brownish at tips; hind wing with the basal and inner areas white, the rest of wing black-brown with some grey at apex, a white postmedial

band oblique and sinuous from costa to vein 4 and ending on termen just above tornus; cilia chequered with brown from below apex to vein 2.

Ab. 1. *moderna*. Much smaller, 74 millim.; hind wing with the pale postmedial band showing faintly on upperside.

Hab. U.S.A., Pennsylvania, Central and Southern States, Texas, Dallas (*Boll*), 2 ♂, 1 ♀. *Exp.* 94–100 millim. Type ♂ *moderna* in Mus. Rømer.

Larva. Food-plant: Walnut.

7141. *Catabapta resecta*. (Plate CXCIII. fig. 2.)

Catocala resecta, Grote, Trans. Am. Ent. Soc. iv. p. 4 (1872); Streck. Lep.

Rhop. & Het. p. 71, pl. ix. f. 2; Smith, Cat. Noct. N. Am. p. 351.

Catocala luctuosa, Hulst, Bull. Brooklyn Ent. Soc. vii. p. 53 (1884).

Head and thorax grey-white tinged with reddish brown; palpi white at base, the 2nd joint towards extremity and sides of frons dark brown; tegulæ with black line at middle and brown line near tips; patagia with black line close to edges; pectus white; legs white irrorated with brown, the fore tibiæ at extremity and mid tibiæ at middle with black bands, the tarsi banded black and white; abdomen greyish brown, the ventral surface brownish white. Fore wing pale grey tinged in parts with red-brown, especially on post-medial area, and irrorated with black-brown; a black streak in submedian fold from base to the antemedial line; subbasal line fine, black, excurved below costa and ending at submedian fold; antemedial line double filled in with whitish, the inner line brown, the outer black, slightly angled outwards below costa, then oblique and sinuous, a rather oblique black streak beyond it below the cell; reniform large with reddish brown centre and white annulus defined by blackish, rather irregularly elliptical; an oblique dark line from middle of costa to the reniform; a curved white mark defined by black below end of cell formed by a sinus of the postmedial line, which is black slightly defined on outer side by white, bent outwards below costa, then oblique and sinuous, acutely angled outwards above and below vein 5, then waved, at vein 2 forming the sinus below end of cell, strongly angled outwards in submedian fold and inwards on vein 1, a black streak in submedian fold from it to the subterminal line, which is white slightly defined on outer side by brown, waved, oblique from costa to below vein 6; a series of blackish points before termen; the veins of terminal area streaked with black. Hind wing black-brown; cilia pure white. Underside of fore wing black-brown, the apex grey, the basal area and basal half of costa whitish, an oblique whitish medial patch from subcostal nervure to vein 2, a white postmedial band, oblique from costa to vein 4 and obsolescent towards inner margin; hind wing with the basal and inner areas whitish, the rest of wing black-brown, a white postmedial band oblique from costa to vein 4, then rather maculate and ending on inner margin just above tornus.

Ab. 1. *luctuosa*. Fore wing more strongly tinged with rufous.

Hab. CANADA; U.S.A., Northern, Eastern, Middle, and Central States, 1 ♂, 1 ♀, Ohio, Columbus, 1 ♂, 1 ♀, Kansas, 2 ♂, 2 ♀.
Exp. 74-84 millim.

Larva. French, Can. Ent. xxvi. p. 97 (1894); Dodge, Can. Ent. xxxiii. p. 298.

Blackish, the medial somites rather paler; dorsal stripe represented by a series of rounded brown patches with a black dorsal line; subdorsal stripes brown, interrupted and indistinct; tubercles tipped with white; 4th somite with pale brown band; 8th somite with a slight black transverse ridge, its anterior part pale brown; filaments whitish, numerous; ventral surface white tinged with pink and with large black spots except on thoracic and 8th and 9th somites; head grey striped with dark brown and with lateral black bands on each lobe. Food-plant: Hickory.

7142. *Catabapta flebilis*. (Plate CXCI. fig. 3.)

Catocala flebilis, Grote, Trans. Am. Ent. Soc. iv. p. 4 (1872); Streck, Lep. Rhop. & Het. p. 71, pl. ix. ff. 3, 4; Smith, Cat. Noct. N. Am. p. 351.

♂. Head and thorax grey mixed with brown; palpi with the 2nd joint black towards extremity; antennæ black, whitish at tips; vertex of head with a black line angled between antennæ; tegulae with black line followed by a brownish line near tips; patagia with black streaks on edges; pectus white and brown; legs suffused with fuscous, the fore tarsi ringed with white; abdomen black-brown, the anal tuft at sides and ventral surface brownish white. Fore wing grey tinged in parts with red-brown and thickly irrorated with blackish; a diffused black fascia below the cell and vein 5 to postmedial line and thence obliquely to termen below apex; subbasal line black, angled outwards below costa and ending at submedian fold; antemedial line black, obliquely excurved and sinuous, slightly angled inwards on median nervure and more strongly on vein 1; reniform large, rounded, its centre tinged with rufous and with slight whitish annulus defined by black except above; an oblique blackish bar from middle of costa to the reniform; an obliquely curved whitish spot defined by black below end of cell, connected with the postmedial line, which is black, forming a small spot at costa, bent outwards below costa, then oblique and sinuous, acutely angled outwards above and below vein 5, then incurved and dentate, at vein 5 forming the sinus below end of cell, strongly angled outwards in submedian fold and inwards on vein 1; subterminal line rather diffused, whitish faintly defined on outer side by brown, slightly waved, oblique from costa to below vein 6; a series of blackish points slightly defined on outer side by whitish before termen; the veins of terminal area with slight dark streaks. Hind wing black-brown; cilia pure white with brown marks at extremities of veins 6 to 2. Underside of fore wing black-brown, a white patch at base, an obliquely curved whitish medial mark from subcostal nervure to vein 2, postmedial

band narrow, whitish, oblique from costa to vein 4 and obsolescent towards inner margin, some whitish at apex, cilia white, brownish at tips; hind wing with the basal and inner areas white, the rest of wing black-brown, a narrow white postmedial band, oblique to vein 4 and ending at tornus.

Hab. U.S.A., Eastern States, 2 ♂. *Exp.* 68 millim.

Larva. Kellicott, *Papilio*, i. p. 141.

Grey with a greenish tinge; dorsal line rather indistinct, formed by a series of black points; subdorsal line more prominent with a series of >-shaped marks on the abdominal somites; lateral stripe still more prominent and continuous, the spiracles defined by black; warts white, each with a brown hair, the warts on 1st somite black; lateral fringes hoary; ventral surface bluish white with black and flesh-coloured spots, the thoracic somites with elliptical flesh-coloured patches, the 4th, 5th, 10th, and 11th somites with similar black patches, the 6th and 7th somites with reddish spots edged in front with black, the 8th and 9th with similar patches not defined by black in front; head bluish grey with series of confluent whitish spots, the vertex with four black points, lateral black bars from angles of jaws. Food-plant: Hickory (*Carya alba*). 6.

7143. *Catabapta robinsoni*. (Plate CXCIIL. fig. 4.)

Catocala robinsoni, Grote, Trans. Am. Ent. Soc. iv. p. 20 (1872): Streck. Lep. Rhop. & Het. p. 71, pl. ix. f. 1; Smith, Cat. Noct. N. Am. p. 351.

Catocala curvata, French, *Papilio*, i. p. 218 (1881).

Head and thorax grey-white mixed with brown; palpi white at base and black-brown towards extremity of 2nd joint; sides of frons black; antennæ blackish; tegulæ brownish with black line defined behind by white near tips; patagia with some black scales on edges; pectus brownish white; legs irrorated with brown, the fore tibiæ at extremities and tarsi banded black and white; abdomen grey-brown, the ventral surface brownish white. Fore wing grey-white suffused with brown and irrorated with black-brown; subbasal line black, angled outwards below costa and ending at submedian fold; antemedial line black, forming a small spot at costa, oblique, sinuous; reniform large, rounded, with slight whitish annulus defined by blackish; an oblique brown striga from middle of costa to the reniform; an obliquely curved pale mark defined by blackish below end of cell, connected with the postmedial line, which is blackish slightly defined on outer side by white, bent outwards below costa, then oblique and slightly sinuous, acutely angled outwards above and below vein 5, then dentate, at vein 2 forming the sinus below end of cell and strongly angled inwards on vein 1; subterminal line diffused, whitish slightly defined on outer side by brown, dentate, oblique from costa to below vein 6; a series of blackish points defined on outer side by whitish before termen; the veins of terminal area with slight dark streaks. Hind wing black-brown with some greyish hair at base; cilia pure white except towards tornus. Underside of fore wing black-brown, some whitish

at base, an oblique medial white patch from below costa to vein 2, postmedial band white, oblique to vein 4 and obsolescent towards inner margin, the apex greyish, cilia white, brownish at tips; hind wing with the basal and inner areas white tinged with brown, the rest of wing black-brown, postmedial band white, oblique and sinuous to vein 4 and ending at tornus.

Ab. 1. curvata. Fore wing with sinuous black fascia below the cell to near middle of wing.

Hab. U.S.A., Eastern, Middle, and Central States, New York, 2 ♂, 2 ♀, Illinois, Mississippi. *Exp.* 74 millim.

7144. *Catabapta badia.* (Plate CXCIIL. fig. 5.)

Catocala badia, Grote & Rob. Proc. Ent. Soc. Phil. vi. p. 22, pl. iv. f. 1 (1866); Smith, Cat. Noct. N. Am. p. 348.

Catocala phabe, H. Edw. Papilio, iv. p. 125 (1884).

Head and thorax bright rufous; antennæ tinged with fuscous; abdomen pale rufous. Fore wing rufous tinged with greyish; a sinuous red-brown subbasal line from costa to submedian fold; a bright rufous shade from subcostal nervure to vein 1 before the antemedial line, which is red-brown, obliquely curved from costa to submedian fold, incurved at vein 1; a broad bright rufous shade on outer part of medial area and beyond the postmedial line; reniform faintly paler obscurely defined by red-brown and its centre defined by red-brown; postmedial line red-brown, indistinct, slightly bent outwards below costa, then minutely waved and excurved, between veins 3 and 2 forming a sinus below end of cell, then excurved at submedian fold and incurved above vein 1; subterminal line represented by an oblique pale shade. Hind wing orange, the basal and inner areas with some red-brown suffusion; a curved black medial band with irregularly sinuous edges; a broad blackish terminal band, its inner edge minutely waved; the termen narrowly orange towards apex; cilia brown, yellowish towards tornus. Underside of fore wing yellow; an oblique blackish antemedial shade from below costa before middle to vein 1, an obliquely curved black medial band, a slight curved fuscous subterminal shade, the terminal area red-brown; hind wing as above, but the costal area irrorated with red-brown, the costal area towards apex and the termen except towards tornus red-brown.

Hab. U.S.A., Eastern and Middle States, 1 ♂, 2 ♀. *Exp.* 60-64 millim.

Larva. Andrews, Can. Ent. viii. p. 198.

Marked with dark grey, the medial somites white or pale grey below. Food-plant: *Myrica cerifera*.

7145. *Catabapta innubens.* (Plate CXCIIL. fig. 6.)

Catocala innubens, Guen. Noct. iii. p. 98 (1852); Smith, Cat. Noct. N. Am. p. 348.

Catocala scintillans, Grote & Rob. Proc. Ent. Soc. Phil. vi. p. 28, pl. iii. f. 6 (1866).

Catocala flavidalis, Grote, Trans. Am. Ent. Soc. v. p. 95 (1874).

Catocala hinda, French, Papilio, i. p. 111 (1881).

Head and thorax red-brown mixed with grey-white; frons with dark lateral bars; tegulæ with red-brown medial line and slight white tips; pectus white tinged with red-brown, the tarsi fuscous ringed with white; abdomen rufous, the ventral surface white tinged with rufous. Fore wing grey suffused with red-brown and dark brown; a curved blackish shade from base of costa to termen below apex, diffused above, extending on antemedial area to costa and beyond the reniform to below costa, the costal area with a whitish patch towards apex; a sinuous black subbasal line from costa to submedian fold; antemedial line double filled in with grey, angled outwards below costa and cell and inwards in cell, a slight whitish shade beyond it from costa to below the cell; reniform defined by blackish and its centre by red-brown, its outer edge somewhat dentate, an oblique dark striga above it from costa; a small white spot defined by black below end of cell; postmedial line black slightly defined on outer side by whitish, bent outwards below costa, then oblique and slightly sinuous, acutely angled outwards above and below vein 5, then inwardly oblique, dentate, and angled inwards at vein 1; subterminal line whitish slightly defined on outer side by brown, obliquely downcurved from costa to below vein 7, then waved; the veins of terminal area streaked with blackish; a series of blackish striæ slightly defined on outer side by whitish before termen. Hind wing deep orange, the basal and inner areas suffused with red-brown; an obliquely curved medial black band from costa to submedian fold where its inner edge is incurved, its outer edge excurved at vein 5; terminal area black, its inner edge slightly incurved at vein 2; the termen narrowly yellow towards apex, then with slight yellow marks in the interspaces to vein 2; cilia yellowish white, chequered with brown at veins 6 to 2, brown towards tornus. Underside of fore wing with the basal half pale yellow with an oblique brown antemedial shade from costa to vein 1, an oblique medial black band narrowing to inner margin followed by a narrow yellowish white band, terminal area black shading to brown at termen and white at apex; hind wing as above but the basal costal area brownish white, the post-medial area white to vein 5.

Ab. 1. Fore wing without blackish suffusion from base of costa to termen below apex.

Ab. 2. *scintillans*. Fore wing suffused with black-brown from base to subterminal line except at base of inner area.

Ab. 3. *flavidalis*. Hind wing clear yellow.

Hab. CANADA; U.S.A., Eastern, Middle, and Central States, 1 ♂, 1 ♀, New York (*Doubleday*), 1 ♀, Ohio, 1 ♂, 4 ♀, Columbus, 2 ♂, 1 ♀, Wisconsin, Illinois, Iowa, Keokuk, 1 ♀, Kansas (*Snow*), 1 ♀, Texas, Dallas (*Boll*), 1 ♂, 1 ♀. *Exp.* 68-76 millim.

Larva. French, Can. Ent. xx. p. 170.

Dirty white faintly tinged with green; seven very faint purplish stripes at sides defined by blackish dots most distinct at inter-

segmental folds; somite 8 with a prominent black patch formed by three spots at each side separated by a short orange dorsal stripe; substigmatal stripe orange at somites 4 and 5; somites 1 to 3 with the rows of spots distinct; piliferous spots small, black; ventral surface yellowish white, with black marks between the feet; no fringes. Food-plants: Honey Locust and Walnut. 5.

7146. *Catabapta muliercula*. (Plate CXCI. fig. 7.)

Catocala muliercula, Guen. Noct. iii. p. 97 (1852); Streck. Lep. Rhop. & Het. p. 74. pl. ix. f. 9; Smith, Cat. Noct. N. Am. p. 348.

Catocala peramans, Hulst, Bull. Brooklyn Ent. Soc. vii. p. 50 (1884).

Head and thorax red-brown mixed with rufous; tegulae rufous at base and with blackish medial line; patagia with some black scales near edges; pectus and legs red-brown and greyish, the tarsi blackish ringed with white; abdomen red-brown, the ventral surface whitish tinged with rufous. Fore wing red-brown; sub-basal line double, black, waved, from costa to submedian fold; antemedial line double, the inner line indistinct, the outer black, oblique and minutely waved to submedian fold, incurved at vein 1, an oblique rufous shade beyond it from costa to median nervure; reniform defined by black, its annulus with some grey scales, its centre defined by red-brown and black, its outer edge somewhat dentate, an oblique black bar above it from costa; an oblique grey and rufous spot defined by black below end of cell, connected by a sinus on vein 2 with the postmedial line which is black slightly defined on outer side by greyish, bent outwards below costa, then oblique, acutely angled outwards above and below vein 5, then oblique and waved, bidentate at submedian fold and angled inwards at vein 1; an indistinct waved whitish subterminal line, oblique to below vein 6, where it is met by an oblique black shade from termen below apex; the veins of terminal area streaked with blackish, a series of black points before termen defined on outer side by whitish. Hind wing orange, the base and inner area dark brown; an obliquely curved black medial band, its outer edge excurved at vein 5 and submedian fold; a broad black terminal band, its inner edge incurved at veins 2 and 1; the termen narrowly yellow towards apex; cilia white towards apex, then brown slightly mixed with whitish and with some yellow scales at base. Under-side of fore wing orange, an oblique black-brown shade from below costa before middle to vein 1, an obliquely curved black medial band, terminal area blackish shading to brown, its inner edge curved; hind wing as above, but the costal area towards base and on postmedial area ochreous suffused with brown, the basal and inner areas without brown, the termen not yellow towards apex.

Ab. 1. *peramans*. Fore wing darker; hind wing almost entirely black, the orange bands broken up into patches.

Hab. U.S.A., Eastern and Southern States, 3 ♂, Georgia, 1 ♂, New Mexico, Gallinas Cañon (*Oslar*), 3 ♂, 1 ♀. *Exp.* 56-72 millim.

Larva. Guen. Noct. iii. p. 97.

Attenuate, narrow at extremities and dilated at middle; reddish yellow with grey subdorsal and stigmatal lines; head with two lateral white dashes. Food-plant: *Myrica*.

7147. *Catabapta paleogama*. (Plate CXCIIL. fig. 8.)

Catocala paleogama, Guen. Noct. iii. p. 97 (1852); Grote, Proc. Ent. Soc. Phil. iii. pp. 87, 541, pl. 3. f. 2; Smith, Cat. Noct. N. Am. p. 349.

Catocala phalanga, Grote, Proc. Ent. Soc. Phil. iii. p. 86, pl. iii. f. 1 (1865).

Catocala annida, Fager, Can. Ent. xiv. p. 120 (1882).

Head and thorax grey mixed with red-brown and some blackish; palpi whitish at base and fuscous towards tips; sides of head white, the frons with lateral black bars; tegulæ with blackish lines near base, at middle and near tips, the prothorax with black line, the patagia with black lines near edges; pectus white; legs white irrorated with fuscous, the tarsi black ringed with white; abdomen rufous, the crests blackish, the ventral surface whitish. Fore wing pale grey tinged in parts with red-brown and irrorated with dark brown; subbasal line black, angled outwards below costa and inwards in cell, ending at vein 1; antemedial line double filled in with whitish, the inner line indistinct, oblique, irregularly waved, angled inwards at vein 1; a slight pale shade beyond it from costa to below the cell; reniform elliptical, rufous with whitish annulus slightly defined by brown, an oblique dark shade above it from costa; an irregular pale spot defined by blackish below end of cell; postmedial line black slightly defined on outer side by whitish, bent outwards below costa, then oblique and slightly sinuous, very acutely angled outwards above and below vein 5, then oblique, dentate and angled inwards at vein 1; subterminal line whitish defined on outer side by blackish, angled inwards below costa, then bent outwards and dentate; the veins of terminal area streaked with blackish; a series of black points before termen defined on outer side by whitish. Hind wing deep orange, the basal and inner areas suffused with red-brown; an obliquely curved medial black band from costa to vein 1, expanding on inner side below costa and with its outer edge angled outwards at vein 5; a black-brown subterminal band, its inner edge angled inwards at veins 2 and 1 and its outer edge emitting short streaks to termen at veins 6 to 2; cilia orange, intersected by blackish at veins 6 to 2. Underside of fore wing orange, some whitish at base, an oblique irregular black-brown shade from costa before middle to vein 1, an obliquely curved black medial band expanding at middle and narrowing to inner margin, a curved subterminal blackish band, the area beyond it grey-brown; hind wing as above, but the base whitish, the medial and subterminal bands narrower, the termen irrorated with brown.

Ab. 1. *annida*. Fore wing with the terminal half darker.

Ab. 2. *phalanga*. Fore wing with the basal area suffused with fuscous black, a fuscous black band beyond the postmedial line.

Hab. U.S.A., Eastern, Middle and Central States (*Doubleday*), 1 ♂, Pennsylvania, 1 ♂, Ohio, 4 ♂, Kansas (*Snow*), 1 ♀. *Exp.* 74–76 millim.

Larva. French, Can. Ent. xx. p. 108.

Pale purplish red mottled with black, sometimes with a yellowish tinge, with five pale and four darker stripes, the latter formed by the mottlings being thicker, the pale stripes darker at middle, the dorsal stripe with dark elliptical marks, broader between the somites; thoracic somites rather darker; piliferous spots pale yellow, on dorsum tipped with orange; somite 8 with slightly elevated black dorsal patch; somite 11 with a pair of prominences; fringes white; ventral surface pale yellow with series of black patches; head striped with reddish white. Food-plants: Hickory and Walnut.

7148. *Catabapta cœlebs*. (Plate CXCI. fig. 9.)

Catocala cœlebs, Grote, Trans. Am. Ent. Soc. v. p. 96 (1874); Smith, Cat. Noct. N. Am. p. 348.

♀. Head and thorax grey mixed with dark brown; tegulae with brown lines at middle and near tips; pectus and legs grey mixed with brown, the tarsi blackish with pale rings; abdomen fulvous brown, the ventral surface whitish tinged with fulvous. Fore wing grey irrorated with red-brown, the terminal area paler; sub-basal line black, sinuous, from costa to submedian fold; a brown and black shade before the antemedial line, which is black, oblique to submedian fold and incurved at vein 1, a white patch beyond it in the cell; reniform defined by black, its annulus with some white scales, its centre defined by brown, its outer edge somewhat dentate, an oblique dark striga above it from costa, some black suffusion beyond its lower extremity; a white and rufous spot defined by black below end of cell, connected by a sinus on vein 2 with the postmedial line, which is black, bent outwards below costa, then obliquely downcurved, acutely angled outwards above vein 5, then oblique and minutely dentate, angled outwards at submedian fold and inwards at vein 1, a red-brown band beyond it followed by the slightly waved whitish subterminal shade, oblique to below vein 6; a series of black points just before termen and a fine waved black terminal line. Hind wing orange-yellow, the base and inner area tinged with red-brown; an obliquely curved black medial band from costa to above inner margin, its edges slightly sinuous; a black terminal band, narrowing to tornus, its inner edge slightly incurved at vein 2; the termen narrowly yellow towards apex; cilia brown, whitish towards apex. Underside of fore wing yellow, an oblique black-brown shade from below costa before middle to vein 1, an obliquely curved black medial band, narrowing to inner margin, a slight curved blackish subterminal band, the terminal area grey-brown; hind wing as above but the costal area grey-brown, the terminal band obsolescent on costal half.

Hub. CANADA, Ontario, St. Catharines (*Norman*), 1 ♀ type; U.S.A., Maine, 1 ♀, New Hampshire, Massachusetts, New York. *Exp.* 62 millim.

7149. *Catabapta antinympha*.

Phalæna paranympa, Drury, Ill. Exot. Ins. i. pl. 23. f. 6 (1770), nec Linn.

Ephesia antinympha, Hübn. Verz. p. 278 (1827); Streck. Lep. Rhop. & Het. p. 36, pl. v. f. 7; Smith, Cat. Noct. N. Am. p. 347.

Catocala affinis, Westw. ed. Drury, Ill. Exot. Ins. i. p. 44, pl. 23. f. 6 (1840).

Catocala melanympa, Guen. Noct. iii. p. 95 (1852).

Head and thorax black-brown tinged with grey and irrorated with white; tegulæ with black lines at middle and tips; the prothorax with a black bar, the patagia with black lines near edges; tarsi black ringed with white; abdomen dull reddish brown, the crests blackish tipped with grey, the ventral surface whitish irrorated with red-brown. Fore wing black-brown suffused with leaden grey; subbasal line black, sinuous, from costa to submedian

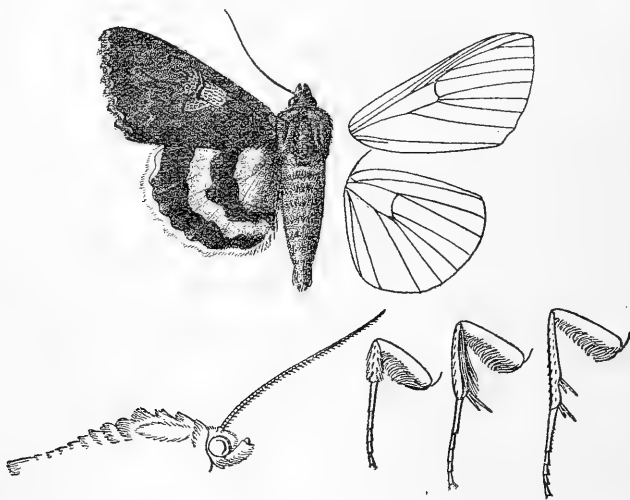


Fig. 3.—*Catabapta antinympha*, ♂. †.

fold; antemedial line double, black, the inner line indistinct, oblique from costa to submedian fold and incurved at vein 1, some whitish beyond it and in cell; reniform irrorated with whitish and defined by blackish, its centre defined by blackish on inner side, an oblique blackish bar above it from costa and the veins beyond lower angle of cell streaked with black, an oblique triangular white spot irrorated with red-brown and defined by black below end of

cell; postmedial line black defined on outer side by some white scales, bent outwards below costa, then oblique and slightly sinuous, acutely angled outwards above and below vein 5, then inwardly oblique, dentate, bidentate at submedian fold and angled inwards at vein 1, a red-brown band beyond it before the very indistinct waved whitish subterminal line which is oblique from costa to below vein 7; a series of black points before termen defined on outer side by white. Hind wing yellow, the inner area suffused with fuscous; an obliquely curved black medial band, its outer edge excurved at vein 5 and submedian fold; the terminal area black, its inner edge incurved at vein 2; a small apical yellow patch; cilia brownish white at apex, then fuscous black with a few whitish scales. Underside of fore wing yellow, an oblique blackish shade from costa before middle to the obliquely curved black medial band narrowing towards inner margin and with its outer edge excurved at vein 5, at inner area, terminal area blackish, its inner edge oblique from costa to vein 4; hind wing as above but the costal area irrorated with brown, the inner area without fuscous.

Hab. CANADA; U.S.A., south to Maryland and east to Mississippi Valley, New York (*Grote*), 4 ♂, 1 ♀. *Exp.* 54-60 millim.

***7150. *Catabapta? denussa*.**

Catocala denussa, Ehrman, J. N.Y. Ent. Soc. i, p. 152 (1893).

♂. Head brown; palpi black; thorax brown irrorated with grey; tegulae edged with pale fawn colour; abdomen pale fawn colour, darker towards extremity. Fore wing black-brown with a silky gloss; subbasal line grey-white; ante- and postmedial lines very faint; reniform minute and hardly traceable; an oblique elliptical whitish spot below end of cell; subterminal line absent. Hind wing orange-yellow; some brown suffusion on basal area; a very narrow, black, obliquely curved irregular medial band, angled outwards at vein 5; a terminal black band, its inner edge sinuous; the termen yellow towards apex and with yellow spots between veins 6 and 2; cilia yellow slightly intersected with blackish at veins 6 and 2. Underside of fore wing yellow, an oblique black band from costa before middle to the curved black postmedial band at inner margin, the terminal area black.

Hab. U.S.A., Pennsylvania, Allegheny Co. *Exp.* 70 millim. This species is unknown to me.

7151. *Catabapta consors*. (Plate CXCI. fig. 10.)

Phalena consors, Smith & Abbot, Ins. Georgia, ii. p. 177, pl. 89 (1797); Streck. Lep. Rhop. & Het, p. 75, pl. ix. f. 10; Smith, Cat. Noct. N. Am. p. 336.

Head and thorax dark brown mixed with grey; palpi whitish towards base; tegulae with slight dark medial line; pectus and legs whitish and brown, the tarsi black ringed with white; abdomen

red-brown, the anal tuft with some grey, the ventral surface white tinged with brown. Fore wing purplish grey tinged with red-brown and irrorated with dark brown; a black subbasal line, slightly angled outwards below costa and ending at submedian fold; antemedial line black, strong and oblique to submedian fold, incurved at vein 1 and excurved above inner margin; reniform defined by blackish and with some rufous in centre, an oblique dark striga above it from costa; a pale spot defined by black below end of cell; postmedial line black, bent outwards below costa, then oblique, acutely angled outwards above vein 5, then inwardly oblique, minutely dentate, excurved at submedian fold and angled inwards at vein 1, a rufous band beyond it followed by a grey-white subterminal shade defined on outer side by a faint dentate brown line; a series of black points just before termen slightly defined on outer side by whitish. Hind wing orange, the basal and inner areas, suffused with dark red-brown, leaving only slight orange marks before the black medial band, which is oblique to submedian fold then bent inwards to inner margin, expanding below costa and at middle and its outer edge excurved at vein 5 and submedian fold; terminal area black, its inner edge incurved at discal fold and veins 2 and 1 and excurved at middle and submedian fold; the termen narrowly yellow towards apex, then with slight yellow marks in the interspaces to vein 2; cilia yellow, chequered with brown at veins 6 to 2 and with some brown towards tornus. Underside of fore wing yellow, an oblique fuscous brown shade from costa before middle to the obliquely curved black medial band with sinuous edges at inner margin, a curved blackish subterminal shade, the area beyond it grey-brown; hind wing as above but with more orange below end of cell before the medial band, the costal area reddish brown, cilia chequered white and brown.

Hab. U.S.A., New York (*Doubleday*), 1 ♂, Pennsylvania and southwards, Mississippi, Kansas (*Meske*), 1 ♂, 3 ♀. *Exp.* 64–72 millim.

Larva. Elongate; clear ochreous grey clouded with blackish, the sides and somital incisions reddish; no protuberances; head with two black streaks. Food-plants: *Myrica* and Bastard Indigo.

7152. *Catabapta serena*. (Plate CXIV. fig. 1.)

Catocala serena, W. H. Edw. Proc. Ent. Soc. Phil. ii. p. 510 (1864); Streck. Lep. Rhop. & Het. p. 23, pl. iii. f. 11; Smith, Cat. Noct. N. Am. p. 348.

♂. Head and tegulæ red-brown; thorax grey tinged with red-brown; pectus red-brown; legs fuscous brown, the tarsi with pale rings; abdomen fulvous brown. Fore wing grey-white suffused with red-brown; subbasal line blackish, sinuous, from costa to submedian fold; antemedial line blackish, obliquely excurved and slightly sinuous, obsolescent on inner area; reniform with whitish centre faintly defined by red-brown and with traces of a brown

outline, an oblique brown shade above it from costa; a whitish spot defined by blackish below end of cell, connected by a sinus on vein 2 with the postmedial line, which is blackish slightly defined on outer side by white, slightly bent outwards below costa, then oblique and slightly sinuous, angled outwards above vein 5, then inwardly oblique, minutely dentate, angled outwards at submedian fold and strongly inwards at vein 1; subterminal line whitish faintly defined on each side by red-brown, dentate, oblique from costa to below vein 7; a series of blackish points before termen slightly defined on outer side by white. Hind wing orange-yellow, the basal and inner areas with some brown hair; a rather narrow black medial band, obliquely curved to submedian fold, then bent inwards to above inner margin, its outer edge excurved at vein 5; a broad black terminal band; the termen narrowly yellow towards apex; cilia whitish at tips. Underside of fore wing pale yellow, the costa brown, the base tinged with brown, an oblique brown antemedial shade, an oblique black-brown medial band not reaching inner margin, the terminal area black-brown with curved inner edge, the apex grey; hind wing as above but suffused with red-brown to the medial band.

Hab. CANADA; U.S.A., Northern and Eastern States, Pennsylvania, Philadelphia, 2 ♂. *Exp.* 60–64 millim.

Larva. Food-plant: Hickory.

7153. *Catabapta nebulosa*. (Plate CXCV. fig. 2.)

Catocala nebulosa, W. H. Edw. Proc. Ent. Soc. Phil. ii. p. 510 (1864); Streck. Lep. Rhop. & Het. p. 75, pl. ix. f. 11; Smith, Cat. Noct. N. Am. p. 350.

Catocala ponderosa, Grote, Proc. Ent. Soc. Phil. vi. p. 23, pl. iv. f. 2 (1866).

Head and thorax red-brown, the latter with some grey on disk; tegulæ with slight dark medial line; patagia with some black scales near edges; pectus and legs whitish suffused with red-brown, the tarsi blackish ringed with whitish; abdomen red-brown, the ventral surface whitish tinged with red-brown. Fore wing pale grey tinged with red-brown, the basal area suffused with black to vein 1, the terminal area red-brown except at middle; subbasal line indistinct, black, sinuous, from costa to submedian fold; antemedial line black, slightly excurved below costa, then oblique, slight below submedian fold and incurved at vein 1, a faint whitish shade beyond it from costa to median nervure, reniform faintly defined by red-brown and with its centre defined by rufous, an oblique red-brown bar above it from costa; an oblique pear-shaped spot defined by black below end of cell, connected by a sinus on vein 2 with the postmedial line, which is black, bent outwards below costa, then oblique and slightly sinuous, very acutely angled outwards above and below vein 5, then inwardly oblique, angled outwards above vein 2 and strongly at submedian fold, below which

there is a black streak on it, strongly angled inwards at vein 1; subterminal line indistinct, pale, slightly defined on outer side by red-brown on the pale area, dentate, oblique from costa to below vein 6; a slight oblique blackish shade from termen below apex; a series of black striæ before termen with slight pale marks on their outer sides. Hind wing orange-yellow, the basal and inner areas suffused with red-brown; an obliquely curved medial black band from costa to above inner margin, its inner edge sinuous and its outer edge angled outwards at vein 5; terminal area black, its inner edge minutely waved and incurved at vein 2; the termen with yellow patch at apex, then with slight yellow marks in the interspaces; cilia yellow with slight dark marks at veins 6 to 2, dark towards tornus. Underside of fore wing yellow, some brown in middle of cell and an oblique patch below middle, an oblique medial black band narrowing to inner margin, its inner edge sinuous, a curved subterminal black band arising below costa, the area beyond it irrorated with brown and with series of black points before termen; hind wing as above, but the medial band narrower, the termen yellow irrorated with brown and with series of blackish points just before it.

Hab. U.S.A., Middle and Central States, 1 ♀, Grote Coll., New York (*Doubleday*), 1 ♂. *Exp.* 92 millim.

7154. *Catabapta piatrix*. (Plate CXCV. fig. 3.)

Catocala piatrix, Grote, Proc. Ent. Soc. Phil. iii. pp. 88, 532, pl. iii. f. 3 (1865); Streck. Lep. Rhop. & Het. p. 74, pl. ix. f. 8; Smith, Cat. Noct. N. Am. p. 350.

Head and thorax grey mixed with red-brown; frons with black lateral bars; tegulæ with two black medial lines; patagia with diffused black lines near edges; pectus and legs whitish suffused with red-brown, the tarsi blackish ringed with white; abdomen red-brown, the ventral surface white tinged with red-brown. Fore wing grey, suffused with red-brown and irrorated with black, the veins streaked with black; subbasal line black, slightly angled outwards below costa and ending at submedian fold; some black suffusion in and below the cell before the antemedial line, which is double, the inner line indistinct on costal half, slightly angled outwards below costa, then excurved to submedian fold and incurved at vein 1, an oblique whitish shade beyond it from costa to below the cell; reniform defined by blackish and with its centre defined by blackish, some dark suffusion beyond it and an oblique dark bar above it from costa; an oblique wedge-shaped whitish spot defined by black below end of cell; postmedial line black slightly defined on outer side by whitish, bent outwards below costa, then oblique and slightly sinuous, very acutely angled outwards above and below vein 5, then oblique, waved, excurved at submedian fold and strongly angled inwards at vein 1; subterminal line grey defined on each side by blackish, waved, oblique from costa to below

vein 6, a short blackish streak beyond it below vein 7; a series of minute black spots defined on outer side by whitish before termen. Hind wing orange-yellow, the basal and inner areas suffused with red-brown; an obliquely curved medial black band from costa to above inner margin, its inner edge waved, its outer edge angled outwards at vein 5 and excurved at submedian fold; terminal area black, its inner edge incurved at vein 2; the termen narrowly yellow towards apex, then with series of slight spots in the interspaces to vein 2; cilia yellowish white, chequered with brown at veins 6 to 2. Underside of fore wing yellow, an oblique irregular brown antemedial shade from below costa to vein 1, an obliquely curved medial black band narrowing to inner margin, a curved fuscous subterminal shade with the area beyond it grey-brown; hind wing as above, but the costal area slightly irrorated with brown, the medial band narrower and more irregular, the terminal area fuscous brown.

Hab. U.S.A., East of Rocky Mts., 1 ♀, Ohio, 1 ♂, 1 ♀, Kansas (Snow), 1 ♂, 1 ♀, Texas, Dallas (Boll), 1 ♀. *Exp.* 80-88 millim.

Larva. Food-plants: Walnut, Hickory, and Persimmon.

7155. *Catabapta dionyya*. (Plate CXCV. fig. 4.)

Catocala dionyya, H. Edw. Papilio, iv. p. 124 (1884); Smith, Cat. Noct. N. Am. p. 350.

Catocala neogama, Druce, Biol. Centr.-Am., Het. ii. p. 512 (nec Smith & Abbot).

Head and thorax brown mixed with whitish; frons with lateral black bars; tegulae with some black; prothorax with blackish band; patagia with diffused black lines near edges; tarsi blackish with pale rings; abdomen yellowish rufous, the extremity with some brown, the ventral surface brownish white. Fore wing grey-white mixed with red-brown and black-brown, the veins streaked with black; an oblique subbasal black bar from costa; the antemedial area suffused with black except towards costa; antemedial line black defined on inner side slightly by whitish, forming a spot at costa, then oblique to submedian fold and incurved at vein 1, an oblique white shade beyond it from costa to below the cell; reniform large, obscurely defined by black and with some whitish in centre, its outer edge dentate, placed on an oblique, diffused blackish patch extending from costa to below angle of cell; a triangular whitish spot defined by black below end of cell; post-medial line black, bent outwards below costa, then oblique, slightly sinuous and with whitish suffusion before it, very acutely angled outwards above and below vein 5, then oblique, dentate, strongly excurved at submedian fold and angled inwards at vein 1; subterminal line whitish, waved, oblique from costa to below vein 6; an oblique dark shade from termen below apex; a series of small black spots defined on outer side by white before termen; cilia chequered brown and whitish at tips. Hind wing orange-yellow; an obliquely curved medial black band from costa to inner margin

towards which it is obsolescent, its outer edge irregular and angled outwards at vein 5; a subterminal black band, ending at vein 1 towards which it is narrow and irregular, its inner edge incurved at vein 2, its outer emitting streak to the cilia at veins 6 to 2; cilia whitish, yellow at base towards tornus. Underside of fore wing yellow, an oblique angled black antemedial mark from middle of cell to submedian fold, an oblique irregular medial black band expanding beyond lower angle of cell and narrowing to inner margin, a curved fuscous subterminal band, the area beyond it brownish grey; hind wing as above but the costal and terminal areas pale brownish grey, the medial band narrow and irregular, the subterminal band faint fuscous and diffused.

Hab. U.S.A., Arizona, Huachuca Mts., 1 ♂, 1 ♀, Prescott (Kunzé), 1 ♂; MEXICO, Durango (Becker), 1 ♂, Godman-Salvin Coll. *Exp.* 80-88 millim.

7156. *Catabapta subnata*. (Plate CXCV. fig. 5.)

Catocala subnata, Grote, Proc. Ent. Soc. Phil. iii. p. 326, pl. iv. f. 5 (1865); Streck. Lep. Rhop. & Het. pp. 34 & 106, pl. v. f. 3; Smith, Cat. Noct. N. Am. p. 350.

Head and thorax grey-white mixed with pale rufous; palpi whitish with some fuscous towards extremity of 2nd joint; frons with blackish lateral bars; tegulæ with black line, the prothorax and mesothoracic crest with black bars, the patagia with black lines near edges; pectus brownish white; legs whitish irrorated with fuscous, the tarsi slightly banded with fuscous; abdomen pale rufous, the ventral surface ochreous white. Fore wing grey-white tinged in parts with red-brown and irrorated with black-brown; subbasal line black, sinuous, from costa to submedian fold, in base of which there is a diffused black streak with a diffused streak from above its extremity to the spot below end of cell; antemedial line double, the inner line indistinct, the outer black, oblique, sinuous, angled outwards above inner margin; reniform defined by black and with its centre defined by black, an oblique black bar above it from costa and some dark suffusion beyond it; an oblique wedge-shaped whitish spot defined by black below end of cell; postmedial line black, bent outwards below costa, then oblique and sinuous, acutely angled outwards and produced to streaks above and below vein 5, then inwardly oblique, dentate, strongly excurved at submedian fold below which there is a black streak on it and angled inwards at vein 1; subterminal line grey-white slightly defined on each side by fuscous, dentate, oblique from costa to below vein 6; the veins of terminal area with black streaks, an oblique dark shade from termen below apex; a series of black points before termen. Hind wing orange-yellow; an obliquely curved black medial band from costa to vein 1, its outer edge angled outwards at vein 5; terminal area black, its inner edge angled inwards at vein 2; the termen narrowly yellow, intersected with black at veins 6 to 2; cilia yellowish white.

Underside of fore wing yellow, an oblique black-brown shade from below costa before middle to vein 1, an irregular obliquely curved medial black band, its inner edge incurved below costa and its outer edge excurved at vein 5, a curved black subterminal band, the terminal area brownish grey; hind wing yellow, the terminal area brownish grey, the black bands narrower and more irregular.

Ab. 1. Fore wing without the black streaks below the cell.

Hab. U.S.A., Eastern and Central States, New York, Evans Center (*Grote*), 2 ♂, Kansas, 1 ♂, 3 ♀ type. *Exp.* 82-100 millim.

Larva. Food-plant, Walnut.

7157. *Catabapta habilis*. (Plate CXCV. fig. 6.)

Catocala habilis, *Grote*, Trans. Am. Ent. Soc. iv. p. 11 (1872); *Smith*, Cat. Noct. N. Am. p. 348.

Catocala basalis, *Grote*, Can. Ent. viii. p. 230 (1876).

Head and thorax white mixed with some red-brown and dark brown; 2nd joint of palpi with black patch at side and white ring at extremity; frons black at sides; tegulae with black medial line; shoulders with black streaks; pectus ochreous white; legs irrorated with fuscous, the tarsi blackish ringed with white; abdomen fulvous brown, the ventral surface white tinged with ochreous. Fore wing grey-white tinged with pale rufous and irrorated with dark brown; subbasal line black, angled outwards below costa and ending at submedian fold; antemedial line black slightly defined on inner side by white, slightly angled outwards below costa, then oblique, sinuous; reniform with its centre defined by brown and whitish annulus slightly defined by blackish, an oblique blackish bar above it from costa; an oblique rather triangular whitish spot defined by blackish below end of cell; postmedial line black slightly defined on outer side by white, bent outwards below costa, then oblique and slightly sinuous, acutely angled outwards above vein 5, then inwardly oblique, waved, and angled inwards at veins 2 and 1; a diffused dentate white subterminal line slightly defined on outer side by brown, oblique from costa to below vein 6; a series of black points before termen defined on outer side by white. Hind wing orange-yellow, the basal and inner areas suffused with red-brown; an obliquely curved black medial band, narrowing to above inner margin, its outer edge angled outwards at vein 5; a black terminal band, its inner edge incurved at veins 2 and 1; the termen with a yellow patch at apex, then with slight yellow marks in the interspaces; cilia yellowish. Underside of fore wing yellow, an oblique black-brown shade from costa before middle to the obliquely curved black medial band with its outer edge excurved at vein 5, at inner area, a black subterminal band, its inner edge oblique to vein 4, the apical area and termen grey-brown; hind wing as above, but the medial band incurved at discal fold and ending at submedian fold, the apex and termen irrorated with brown.

Ab. 1. *basalis*. Fore wing with black streaks above base of vein 1 and before the antemedial line below the cell.

Hab. CANADA, Ontario, Oneida (*Bailey*), 1 ♀ type *basalis*; U.S.A., Eastern, Middle, and Central States, New York, 2 ♂, 1 ♀, Ohio (*Drury*), 1 ♀. *Exp.* 60–70 millim.

Larva. Kellicott, Ent. Am. ii. p. 46.

Slender, dark or almost black; a broad pale dorsal stripe defined on each side by broad dark stripes; stigmal stripes almost black; ventral surface whitish with black spots on the medial somites; head tinged with red and with faint white reticulations. Food-plant, Hickory, *C. alba*. 7.

7158. *Catabapta neogama*. (Plate CXCIV. fig. 7.)

Phalena neogama, Smith & Abbot, Ins. Georgia, ii. p. 175, pl. 88 (1797); Duncan, Jardine's Nat. Libr. v. p. 202, pl. 26. ff. 1, 2; Streck. Lep. Rhop. & Het. p. 35, pl. v. ff. 4, 5; Smith, Cat. Noct. N. Am. p. 349.

Catocala communis, Grote, Trans. Am. Ent. Soc. iv. p. 9 (1872).

Catocala snoviana, Grote, List Noctuidæ, p. 41 (1876).

Head and thorax rufous mixed with grey-white; palpi whitish at base, blackish towards tips; pectus whitish tinged with rufous; legs whitish and brown, the tarsi banded with blackish; abdomen fulvous brown, the ventral surface whitish tinged with fulvous. Fore wing grey-white suffused in parts with rufous and irrorated with black-brown; subbasal line black, angled outwards below costa and ending at submedian fold, a diffused blackish fascia beyond it below the cell to the antemedial line, which is black, oblique and sinuous to submedian fold, then angled inwards on vein 1; reniform rufous with whitish annulus defined by blackish and some whitish in centre, an oblique blackish striga above it from costa and an oblique white streak before it in cell; an oblique elliptical rufous and whitish spot defined by black below end of cell; postmedial line black slightly defined on outer side by whitish, bent outwards below costa, then oblique and sinuous, very acutely angled outwards above and below vein 5, then inwardly oblique, dentate, strongly excurved at submedian fold and angled inwards at vein 1; postmedial area rufous; subterminal line whitish defined on outer side by brown, waved, oblique from costa to below vein 6; an oblique blackish shade from termen below apex; a series of black striæ before termen slightly defined on outer side by white. Hind wing orange-yellow, the inner area with some brownish hair; an obliquely curved medial black band from costa to vein 1, its outer edge excurved at vein 5; terminal area black, its inner edge angled inwards at veins 2 and 1; the termen with small yellow patch at apex with bidentate inner edge, then with series of small spots in the interspaces to vein 2; cilia yellow with slight brown marks at veins 6 to 2. Underside of fore wing yellow, an oblique black-brown shade from costa before middle to vein 1, an obliquely curved black medial band, its inner edge sinuous, a curved black

antemedial band, the termen brownish grey; hind wing yellow, the terminal area brownish grey, the black bands narrower and more irregular.

Ab. 1. *communis*. Fore wing paler and more uniform brownish grey.

Ab. 2. *snoviana*. Fore wing much darker; hind wing with the basal area suffused with dark brown, the medial and terminal black bands broader and the yellow postmedial band narrower.

Ab. 3. Hind wing with the terminal band interrupted.—
Arizona.

Hab. U.S.A., East of Rocky Mts., New York, 3 ♂, 2 ♀, Pennsylvania, 1 ♂, Kansas (*Snow*), 1 ♂, 1 ♀, Arizona. *Exp.* 77–92 millim.

Larva. Guen. Noct. iii. p. 96; Dodge, Can. Ent. xxxiii. p. 299.

Head grey with many dark markings and black patches at sides of mouth; 1st somite grey, the others wood-brown; subdorsal stripes black on somites 4 and 8; dorsal stripe expanding into patches on medial segments; 8th somite with black band and slight raised ridge; tubercles whitish, large on 11th somite; stigmatal stripe black; sublateral filaments simple and slight; ventral surface tinged with red and spotted with black. Food-plant, Walnut.

*7159. *Catabapta euphemia*.

Catocala euphemia, Beutenm. Bull. Am. Mus. Nat. Hist. xxiii. p. 938 (1907).

Head and thorax dark grey-brown with a slight olive tinge; pectus and legs brownish white; abdomen fulvous yellow, the ventral surface brownish white. Fore wing almost uniform grey-brown with an olive tinge; subbasal line black, angled outwards below costa and ending at submedian fold; a black streak in base of submedian fold usually present; antemedial line black defined on inner side by olivaceous, dilated at costa, oblique, sinuous; reniform olivaceous defined by black and with its centre defined by black; a spot below end of cell defined by black and connected with the postmedial line, which is black, bent outwards below costa, then oblique, strongly angled outwards above and below vein 5, then slightly dentate, excurved below vein 2 and angled inwards at vein 1; subterminal line greyish, strongly dentate, oblique to vein 6. Hind wing dull orange-yellow; an obliquely curved black medial band, strongly constricted at discal fold and narrowing to inner margin; terminal band black, its inner edge oblique to vein 5, then sinuous; the apical part of termen yellow; cilia yellow, intersected with brown at veins 6 to 2. Underside of fore wing pale orange-yellow, an oblique black shade from costa before middle to the oblique black postmedial band at inner margin above which the band is strongly angled, terminal area black irrorated with orange; hind wing orange-yellow, the medial band

narrow and triangular, a narrow black subterminal band, the termen orange, cilia orange-yellow.

Hab. U.S.A., Texas, Arizona, Huachuca Mts. *Exp.* 80-85 millim. This species is unknown to me.

Genus **MORMONIA.**

	Type.
<i>Mormonia</i> , Hübn. Verz. p. 276 (1827).....	<i>epione</i> .
<i>Astiotes</i> , Hübn. Verz. p. 277 (1827).....	<i>dilecta</i> .
<i>Blepharum</i> , Hübn. Tent. ined.....	<i>sponsa</i> .

Proboscis fully developed; palpi upturned, the 2nd joint reaching to middle of frons and moderately scaled, the 3rd moderate; frons smooth with tuft of hair above; eyes large, round; antennæ of male ciliated; thorax clothed with hair and scales mixed, the pro- and metathorax with slight spreading crests, the mesothorax with small paired crests; tibiæ moderately fringed with hair, the fore tibiæ not spined, the mid and hind tibiæ spined, the latter both before and between the spurs; the mid tibiæ of male dilated with a fold containing a tuft of long hair; abdomen with dorsal ridges of hair and hairy crests on basal segments. Fore wing triangular, the apex rounded, the termen evenly curved and crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the cell about one-third length of wing; veins 3, 4 from angle of cell; 5 fully developed from just above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

- A. Hind wing black-brown *epione*.
- B. Hind wing crimson or scarlet.
 - a. Hind wing with the medial black band angled outwards at discal fold and excurved at submedian fold.
 - a¹. Hind wing on underside without black streak in cell, the medial band excurved below costa *sponsa*.
 - b¹. Hind wing on underside with black streak in cell, the medial band oblique from costa to discal fold.
 - a². Hind wing crimson *dilecta*.
 - b². Hind wing scarlet *dula*.
 - b. Hind wing with the medial band oblique to submedian fold, then bent outwards to inner margin..... *mesopotamica*.
 - c. Hind wing with the medial band obliquely curved.
 - a¹. Fore wing on underside with the basal half crimson. *aholibah*.
 - b¹. Fore wing on underside brownish white *amatrix*.
 - C. Hind wing black with small discoidal cloud, narrow medial band, and broad terminal band, orange *calphurnia*.
 - D. Hind wing yellow or orange.
 - a. Fore wing on underside yellow or orange.
 - a¹. Hind wing with the medial band oblique to submedian fold, then more or less bent inwards towards inner margin.
 - a². Hind wing with the inner area more or less suffused with brown.
 - a³. Fore wing with oblique black-brown fascia from base of costa to below end of cell.
 - a⁴. Hind wing with the medial and terminal bands broad, the submedian interspace suffused with brown to the medial band..... *scortorum*.
 - b⁴. Hind wing with the medial and terminal bands narrower, the submedian interspace tinged with brown at base only *abamita*.
 - b³. Fore wing without oblique black-brown fascia from base of costa to below end of cell.

- a*⁴. Fore wing largely suffused with red-brown . . . *delilah*.
*b*⁴. Fore wing almost entirely suffused with dark brown . . . *chelidonia*.
*b*³. Hind wing with the inner area not suffused with brown.
*a*³. Fore wing grey slightly suffused with red-brown . . . *neonympha*.
*b*³. Fore wing white suffused with blue-grey . . . *frederici*.
*b*¹. Hind wing with the medial black band obliquely curved . . . *illecta*.
b. Fore wing on underside white . . . *bella*.

7160. *Mormonia epione*.

Noctua epione, Drury, Ill. Exct. Ins. i. p. 43, pl. 23. f. 2 (1773); Cram. Pap. Exot. ii. p. 9, pl. 102. ff. E, F; Smith, Cat. Noct. N. Am. p. 347.

Head and tegulæ reddish brown mixed with grey, the tegulæ with brown medial line and darker tips; palpi whitish at base; thorax dark greyish brown; pectus and legs white mixed with brownish, the tarsi brown ringed with white; abdomen dark brown, the anal tuft white at tip, the ventral surface white,

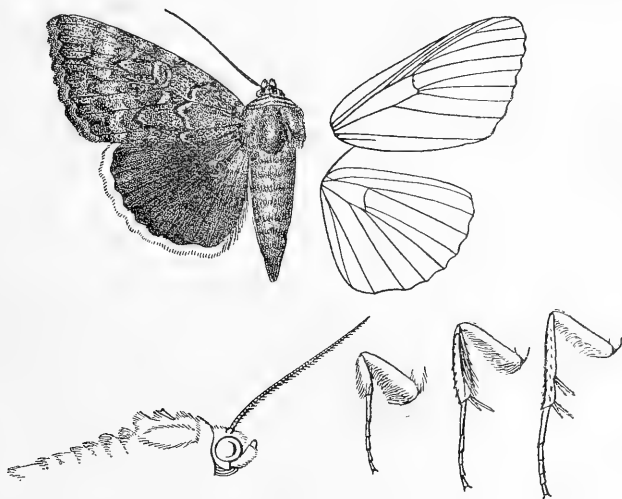


Fig. 4.—*Mormonia epione*, ♂. ♀.

suffused with brown towards extremity. Fore wing dark brown mixed with grey and red-brown; subbasal line black, slightly angled outwards below costa and ending at submedian fold; ante-medial line black, oblique, sinuous, an oblique grey shade beyond it from costa to median nervure; reniform red-brown slightly defined by black and with deeper red-brown centre, elliptical; a pear-shaped white spot defined by black below end of cell; post-medial line black, bent outwards below costa, then defined on outer

side by a rufous band, angled outwards above vein 5, then waved and somewhat oblique; a dentate fuscous subterminal line defined on inner side by a grey band; a series of black points before termen defined on outer side by whitish points. Hind wing black-brown, the cilia pure white except towards tornus. Underside of fore wing black-brown, the terminal area grey, a whitish wedge-shaped medial patch from subcostal nervure to vein 2, a curved white postmedial band, the cilia with series of white spots at base; hind wing grey suffused with black-brown except on basal and costal areas, a narrow obliquely curved pale band, white towards costa, from middle of costa to inner margin above tornus, defined on inner side by black-brown.

Hab. CANADA; U.S.A., Eastern, Middle, and Central States, New York, Evans Center (*Grote*), 1 ♂, Pennsylvania, 1 ♂, Ohio, Columbus, 1 ♀, Georgia, 1 ♂, 1 ♀, Kansas, 2 ♂, 1 ♀. *Exp.* 66-72 millim.

Larva. Guen. Noct. iii. p. 93; Dodge, Can. Ent. xxxiii. p. 225.

Reddish grey marbled with blue-grey; subdorsal line black, interrupted at middle of each somite; a pale lateral band; head grey with two red points; no protuberances. Food-plants, Oak and Hickory.

7161. *Mormonia sponsa*.

Noctua sponsa, Linn. Syst. Nat. ed. xii. p. 841 (1767); Esp. Schmett. iv. pl. 95; Hübn. Eur. Schmett., Noct. f. 333; Godt. Léop. Fr. v. p. 68, pl. 48. f. 2; F. de Waldheim, Ent. Russ. i. p. 196, pl. v. f. 1; Staud. Cat. Lep. pal. p. 248.

Catocala rejecta, F. de Waldheim, Ent. Russ. i. p. 197, pl. v. f. 2 (1820).

Catocala desponsa, Schultz, Ent. Zeit. Guben. xx. p. 94 (1906).

Catocala læta, Oberth. Bull. Soc. Ent. Fr. 1907, p. 346.

Catocala florida, Schultz, Ent. Zeit. xxii. p. 169 (1909).

Head and thorax brown mixed with whitish and black; palpi white irrorated with black; frons with lateral black bars; tegulæ and prothorax with blackish lunules, the patagia edged with black; pectus and legs brownish white, the tibiæ irrorated with black and with black bands, the tarsi blackish ringed with white; abdomen grey-brown, the ventral surface whitish tinged with brown. Fore wing red-brown mixed with some grey-white and suffused in parts with fuscous; subbasal line black defined on outer side by whitish, sinuous, from costa to submedian fold; antemedial line blackish, diffused and oblique from costa to submedian fold, then indistinctly double, waved, filled in with white at inner margin; reniform with yellowish centre defined above and below by brown and white annulus defined by black, dentate on outer side, an oblique dark bar above it from costa with a brownish white band before it becoming yellow and white in the cell; a yellow spot defined by black below end of cell; postmedial line indistinctly double, black, filled in by white at costa and towards inner margin, bent outwards below costa, then obliquely downcurved, angled outwards above and below vein 5, then incurved, slightly waved, and angled inwards

at vein 1; subterminal line whitish defined on outer side by black, dentate, somewhat oblique from costa to below vein 6; a series of black striæ before termen defined on outer side by whitish; cilia chequered brown and whitish. Hind wing crimson, the hair on inner margin brown, the base and inner area with some brownish hair; a narrow black medial band, oblique to discal fold where it is angled outwards, incurved at middle and excurved at submedian fold; terminal area black, narrowing to tornus, its inner edge excurved at discal and submedian folds; the termen with slight reddish spots between veins 6 and 2; cilia chequered brown and white to vein 2, then brown with whitish tips. Underside of fore wing black-brown, greyish at base, an oblique white medial bar from below costa to vein 2, a narrow white postmedial band, obliquely curved to vein 6 and suffused with brown in submedian interspace, the apex grey, cilia chequered brown and white; hind wing with the basal costal area pale brown, a black discoidal bar with some whitish beyond its upper part, the narrow postmedial area with some white to vein 5.

Ab. 1. *rejecta*. Hind wing with the basal and inner areas suffused with blackish.

Ab. 2. *desponsa*. Hind wing yellowish.

Ab. 3. *læta*. Larger; fore wing more variegated with grey-white and fulvous.—Algeria.

Hab. BRITAIN, Leech Coll.; FRANCE; GERMANY, Zeller, Frey, and Mutzell Colls.; AUSTRIA; HUNGARY, D'Emmich Coll.; ITALY; SARDINIA; SICILY; ALGERIA; DALMATIA; SCANDINAVIA; RUSSIA, Livonia, Zeller Coll., Sarepta, Mutzell Coll.; ASIA MINOR, Pontus; ? N. PERSIA. *Eup.* 58–78 millim.

Larva. Meyr. Brit. Lep. p. 162; Barrett, Lep. Brit. vi. p. 261, pl. 254, f. 1; Kirby, Butt & Moths Eur. p. 276, pl. 43. ff. 5*a-c*; Hffm. Raup. p. 148, pl. 37. f. 8.

Pale ochreous with darker freckles; 4th somite with a pale ochreous dorsal blotch, the 9th with a dorsal mark; darker brownish dorsal blotches between somites 8 and 9 and on 11; warts with spines; the 8th somite with a dorsal prominence, the 11th with pair of pointed prominences; head reddish brown with black dorsal band behind. Food-plant, Oak. 5–6.

7162. *Mormonia dilecta*.

Noctua dilecta, Hübn. Eur. Schmett., Noct. f. 388 (1808); Staud. Cat. Lep. pal. p. 248.

Noctua sponsea, Godt. Lép. Fr. v. p. 68, pl. 48. f. 3 (nec Linn.).

Catocala dayremi, Oberth. Bull. Soc. Ent. Fr. 1907, p. 345.

Catocala powelli, Oberth. Bull. Soc. Ent. Fr. 1907, p. 345.

Head and thorax brown mixed with grey and black; palpi whitish towards base; frons with lateral black bars; tegulæ black at tips; patagia with black scales near edges; pectus and legs white and brown, the tarsi fuscous ringed with whitish; abdomen grey-brown, the ventral surface whitish tinged with grey. Fore

wing brown mixed with grey; subbasal line black, sinuous, from costa to submedian fold; antemedial line double, the lines widely separated, rather indistinct, the inner line curved, angled outwards in cell, the outer line angled inwards at median nervure and vein 1 and outwards in submedian fold, a greyer patch beyond it from costa to vein 2; reniform with grey annulus defined by blackish, its centre defined by brown, its outer edge minutely dentate, an oblique dark striga above it from costa; a small grey spot defined by black below end of cell; postmedial line double filled in with grey, the outer line indistinct, bent outwards below costa, then obliquely downcurved, very acutely angled outwards above and below vein 5, then incurved, angled outwards at submedian fold and inwards at vein 1; subterminal line grey defined on each side by blackish, dentate, obliquely incurved from costa to below vein 7; the veins of terminal area streaked with blackish; a series of black strigæ before termen defined on outer side by whitish. Hind wing deep crimson, the hair on inner margin brown, the basal and inner areas with some brownish hair; a black medial band, angled outwards at discal fold and incurved at vein 3, then narrower, excurved, and obsolescent towards inner margin; terminal area black, narrowing to tornus, its inner edge incurved at veins 2 and 1; cilia white, chequered with brown to vein 2, then brown at base. Underside of fore wing black-brown, some grey at base, an oblique whitish medial bar from below costa to vein 2; a narrow white postmedial band, excurved below costa, then with brown streaks on the veins, the apical area suffused with grey, cilia chequered brown and white; hind wing with the basal costal area grey-brown, a black discoidal lunule connected above with the medial band which ends above vein 1, the very narrow postmedial area whitish to discal fold, then with whitish streaks on the veins.

Ab. 1. *dayreni*. Fore wing suffused with dark brown to the subterminal line, the terminal area paler.—Algeria.

Ab. 2. *pouelli*. Fore wing with the ground-colour pale grey slightly tinged with yellowish.—Algeria.

Hab. S. FRANCE; GERMANY, Zeller and Mutzell Colls.; AUSTRIA; HUNGARY, D'Emmich Coll.; SWITZERLAND; SPAIN, Andalusia, Mutzell Coll.; CORSICA; SARDINIA; ITALY; ALGERIA, Batna (*Eaton*), 1 ♂; TUNIS, 2 ♂; DALMATIA; GREECE, Merlin Coll.; RUMELIA; CYPRUS (*Miss Bate*), 1 ♀; ASIA MINOR, Taurus, Amanus Mts., 1 ♀; Syria, 1 ♀, Leech Coll. *Exp.* 68–92 millim.

Larva. Kirby, Butt. & Moths Eur. p. 276; Hfsm. Raup. p. 148, pl. 37. f. 7.

Grey variegated with greenish; dorsal line double, dark; somite 8 with a yellowish prominence suffused with fuscous at sides; warts yellowish or whitish; head brown with dark streaks. Food-plant, Oak. 5–6.

7163. *Mormonia dula*.

Catocala dula, Brem. Lep. Ost-Sib. p. 59, pl. 4. f. 14 (1864); Staud. Cat. Lep. pal. p. 248.

Head and thorax brown mixed with grey-white and black; palpi white in front towards base; pectus and legs white and fuscous, the tarsi blackish ringed with white; abdomen grey-brown, the ventral surface whitish suffused with brown towards extremity. Fore wing brown mixed with some white and suffused in parts with black; subbasal line indistinct, blackish, sinuous, from costa to submedian fold; antemedial line indistinct, double, oblique, sinuous, the outer line angled outwards at submedian fold, a whitish patch beyond it from costa to vein 2 and a whitish patch on inner medial area; reniform with whitish centre defined by brown and incomplete white annulus defined by blackish, its outer edge somewhat dentate, an oblique brown striga above it from costa; a pure white spot defined by black below end of cell; traces of an oblique line beyond the cell from vein 6 to submedian fold; postmedial line double, black, the outer line indistinct, with some white suffusion at costa and filled in with white on inner area, bent outwards below costa, then obliquely downcurved, acutely angled outwards above vein 5, then incurved, slightly excurved above vein 2 and at submedian fold and angled inwards at vein 1; subterminal line double, black filled in by some white scales, waved, oblique from costa to below vein 7; a series of black strigæ before termen defined on outer side by yellowish. Hind wing crimson, the basal and inner areas clothed with brown hair; a black medial band, angled outwards at discal fold, incurved at vein 3, then very narrow, excurved and ending at vein 1; terminal area black, narrowing to tornus, its inner edge angled outwards at discal fold, incurved and slightly waved at middle, and slightly incurved at vein 1; cilia white, chequered with black to vein 2, then mixed with brown. Underside of fore wing black, some bluish white at base, an oblique bluish white medial band from costa to vein 2, a bluish white postmedial band, oblique to vein 4 and ending at inner margin near tornus, cilia chequered black and white; hind wing with the basal costal area bluish white, a black discoidal lunule conjoined above to the medial band and with white patch beyond it, the narrow postmedial area white to vein 3.

Ab. 1. Fore wing without any white suffusion on medial area, Hind tibiæ spined towards base only.

Hab. E. SIBERIA, Amurland, 1 ♂, 1 ♀, Ussuri; JAPAN, Hakodate (Leech), 1 ♂, Sendai (Leech), 1 ♂, Tokio (Fenton), 3 ♂, Yokohama (Jonas, Manley, Bristowe), 3 ♂, 1 ♀. Exp. 66-76 millim.

*7164. *Mormonia mesopotamica*. (Plate CXCIV. fig. 8.)

Catocala hetæra, Staud. Iris, vii, p. 285 (1894); nec Staud. 1892.

Catocala aspasia, Staud. Iris, ix, p. 400 (1896); id. Cat. Lep. pal. p. 248; (nec Streck. 1874).

Catocala mesopotamica, Kusnezov, Rev. Russ. Ent. iii, p. 74 (1903).

Catocala staudingeri, Beutenm. Bull. Am. Mus. xiii, p. 151 (1907).

♀. Head and thorax olive-brown mixed with grey; tegulæ with black bands near base and at tips; tibiæ and tarsi banded with black; abdomen olive-brown tinged with grey and with grey segmental bands. Fore wing olive-brown mixed with grey; subbasal line black, waved, from costa to submedian fold; ante-medial line double, black, oblique, waved; reniform brown with grey annulus on outer side, connected with a brown bar from costa, and with slight whitish spots before it on and below median nervure; a small whitish spot defined by blackish below end of cell; a brown bar from costa just beyond the cell with the slight medial line arising from it, oblique to vein 5 where it is angled outwards, then inwardly oblique, and slightly waved to vein 1, then excurved; postmedial line black, bent outwards below costa, then obliquely downcurved and angled outwards above and below vein 6, then inwardly oblique, and excurved below vein 2, two indistinct waved lines beyond it; subterminal line rather diffused, blackish, dentate; a series of black stræ just before termen defined on outer side by whitish. Hind wing crimson, the veins streaked with whitish; the base and inner margin tinged with brown; a black medial band oblique to submedian fold then bent inwards to inner margin, somewhat dilated below costa and at middle; the terminal area black, broad at costa and narrowing to tornus, its inner edge evenly curved and waved; cilia white, chequered with brown at base. Underside of fore wing blackish, the costa and apical area tinged with grey, an oblique white medial bar from below costa to vein 2, and postmedial band excurved below vein 6; hind wing as above but the costal area white irrorated with brown to beyond middle, a black discoidal lunule confluent above with the medial band.

Hab. SYRIA, Mardin. *Exp.* 88 millim. This species is unknown to me; figured from a drawing from type.

7165. *Mormonia aholibah*. (Plate CXCIV. fig. 9.)

Catocala aholibah, Streck. Lep. Rhop. & Het. p. 72, pl. ix. f. 5 (1874);

Smith, Cat. Noct. N. Am. p. 339.

Catocala coloradensis, Beutenm. Bull. Am. Mus. xix, p. 507 (1903).

Head and thorax brown mixed with grey and blackish; tegulæ with brown medial line and band near tips; pectus brown and white; legs irrorated with blackish; abdomen grey-brown, the ventral surface whitish tinged with brown. Fore wing red-brown mixed with some white and blackish; subbasal

line black, oblique, sinuous, from costa to submedian fold; antemedial line double, black, filled in with white at inner margin, the lines rather diffused, widely separated, oblique and slightly sinuous to submedian fold, then strongly angled inwards at vein 1, an oblique whitish shade beyond it from costa to median nervure; reniform with undefined whitish annulus, its centre defined by red-brown, an oblique dark bar above it from costa; a small rather triangular white spot defined by brown below end of cell; an indistinct oblique dark line beyond the cell between vein 6 and submedian fold; postmedial line black, defined on outer side by white towards inner margin, slightly bent outwards below costa, then oblique, very acutely angled outwards above and below vein 5, angled outwards at submedian fold and inwards at vein 1, a rather diffused brown line beyond it on the rufous postmedial area; subterminal line white defined on outer side by blackish, waved, oblique from costa to below vein 6; an oblique dark shade from termen below apex; a waved blackish line before termen defined on outer side by small white spots. Hind wing crimson, the hair on inner margin brown and the inner area with some brown hair; an obliquely curved black medial band, its outer edge slightly angled outwards at vein 5; terminal area black, narrowing to tornus, its inner edge slightly incurved at veins 2 and 1; cilia white, chequered with black to vein 2, brown towards tornus. Underside of fore wing with the basal area pale brownish, an oblique black-brown shade from costa before middle to the postmedial band at vein 1 followed by a wedge-shaped crimson patch from costa to submedian fold, then an oblique black band narrowing to inner margin, its outer edge excurved at vein 5 and followed by the white postmedial band tinged with crimson on inner area, terminal area blackish with some grey on costa and apical area, cilia chequered white and brown; hind wing as above but the basal costal area pale brownish, the medial band ending at vein 1 and with its outer edge angled at vein 7; the narrow postmedial area whitish to vein 5.

Ab. 1. *coloradensis*. Fore wing pale grey-brown suffused with white scales, the postmedial line very distinct.—Colorado.

Hab. CANADA, Vancouver I. (*H. Edwards*), 2 ♂; U.S.A., Washington, Oregon, Colorado, Glenwood Springs, California, 1 ♂, 1 ♀, New Mexico. *Exp.* 80–82 millim.

7166. *Mormonia amatrix*.

Lamprosia amatrix, Hüb. Samml. Ex. Schmett. ii. Lep. iv. Noct. iii.

ff. 3, 4 (1810); Streck. Lep. Rhop. & Het. p. 98, pl. xi. ff. 15–16; Druce

Biol. Centr.-Am., Het. ii. p. 511; Smith, Cat. Noct. N. Am. p. 344.

Catocala nurus, Wlk. xiii. 1195 (1857).

Catocala selecta, Wlk. xiii. 1197 (1857).

Catocala editha, W. H. Edwards, Trans. Am. Ent. Soc. v. p. 112 (1874).

Head and thorax pale red-brown mixed with grey; tegulæ with slight brown line near base and double medial line; prothorax with

narrow red-brown band; patagia with some blackish scales towards extremity; palpi with some whitish at base and in front, the 2nd joint with some fuscous; frons with lateral black bars; pectus and legs whitish tinged with brown, the fore tibiæ with black spots at base and extremity, the tarsi with fuscous bands; abdomen pale reddish brown, the anal tuft at extremity and the ventral surface whitish. Fore wing grey tinged with red-brown and slightly irrorated with dark brown; subbasal line black, excurved below costa and ending at submedian fold; antemedial line black, oblique and sinuous to submedian fold, then slight and angled inwards at vein 1, a short black streak beyond it on base of vein 2; reniform slightly defined by red-brown, its centre defined by red-brown, its outer edge somewhat dentate, an oblique fuscous striga above it from costa; a large irregular spot defined by black below end of cell, connected with the postmedial, line which is black, bent outwards below costa, then obliquely downcurved, acutely angled outwards above and below vein 5, then oblique, dentate, at vein 2 forming the sinus below end of cell, bidentate at submedian fold and angled inwards at vein 1; subterminal line indistinct, double, dentate, obliquely downcurved from costa to below vein 7; a series of black points in the interspaces before termen and an oblique dark shade from termen below apex to the angle of postmedial line. Hind wing bright crimson-pink; an obliquely curved medial black band from costa to vein 1, its outer edge angled outwards at vein 5; the terminal area black, broad at costa and narrowing to a point at vein 1; the termen to vein 2 and cilia white, with a series of brown spots at veins 6 to 2. Under-side of fore wing white, an oblique fuscous shade from below costa before middle to the black medial band at submedian fold, this band oblique from costa to vein 5, a curved fuscous subterminal band, the area beyond it grey irrorated with brown; hind wing as above but the basal costal area whitish, the postmedial costal area whitish and with some whitish at submedian fold, a dark discoidal striga, the medial black band narrower and more irregular, the subterminal band obsolescent towards costa, the area beyond it to vein 2 grey irrorated with brown.

Ab. 1. *nurus*. Fore wing with diffused blackish fascia below the cell and oblique shade from termen below apex to end of cell.

Hab. CANADA, Nova Scotia; U.S.A., Eastern States, New York (*Doubleday*, *Grote*), 8 ♂, 1 ♀, types *nurus* and *selecta*, Ohio (*Drury*), 1 ♂, Kansas (*Snow*), 1 ♂, Florida, Texas, Colorado, Northern Range, Arizona; MEXICO, Durango (*Forrer*), 1 ♂, 1 ♀, Godman-Salvin Coll. *Exp.* 84–98 millim.

Larva. Kellicott, *Papilio*, i. p. 142; French, *Papilio*, iv. p. 8.

Very pale lilacine white with three dorsal and three lateral stripes; 8th somite with a slight clay-coloured protuberance, the 11th somite with a pair of slight protuberances. Food-plants, Willow and Poplar.

*7167. *Mormonia*? *calphurnia*.

Catocala calphurnia, H. Edw. Bull. Brooklyn Ent. Soc. iii. p. 59 (1880);
Smith, Cat. Noct. N. Am. p. 337.

Head and thorax brown with a greenish tinge; tegulæ with dark lines at middle and tips; patagia with a dark line near upper edge; abdomen red-brown. Fore wing brown tinged with greenish; subbasal line slight, sinuous, from costa to submedian fold; antemedial line almost obsolete, oblique, sinuous; reniform and the spot below end of cell very indistinctly defined; postmedial line slight, bent outwards below costa, then oblique, strongly angled outwards above vein 5 and slightly below it, then incurved and slightly waved, strongly angled inwards above vein 1; subterminal line indistinctly defined, dentate; a slight crenulate terminal line. Hind wing black; a small discoidal cloud, narrow medial band and broad terminal band orange; cilia orange intersected with black on tornal half. Underside of fore wing blackish, some orange tinged with fuscous at base and an oblique medial band.

Hab. U.S.A., Kansas. *Exp.* 50 millim. This species is unknown to me; Mr. Beutenmuller suggests that it may be an exotic species.

7168. *Mormonia scortorum*. (Plate CXCIV. fig. 10.)

Catocala scortorum, Leech, Trans. Ent. Soc. 1900, p. 530.

♀. Head and tegulæ grey mixed with brown; palpi dark brown, ochreous white towards base; frons with lateral black bars; tegulæ dark at tips, the prothorax with narrow dark band; thorax brownish grey, the patagia with blackish lines near edges; pectus brownish white; legs grey and dark brown, the tibiæ and tarsi banded with black; abdomen ochreous brown, the ventral surface whitish. Fore wing grey suffused and irrorated with reddish brown, the veins with dark streaks; a broad oblique dark brown fascia from base of costa to the spot below end of cell; antemedial line obsolete on costal area, dark brown, oblique and sinuous from the fascia to inner margin; reniform slightly defined by brown and with its centre defined by brown, an oblique dark bar above it from costa; a whitish spot defined by dark brown below end of cell, connected by a sinus with the postmedial line at vein 2; postmedial line black-brown, oblique and sinuous from costa to vein 6, very acutely angled outwards and produced to streaks above and below vein 5, then inwardly oblique, dentate, very strongly angled outwards in submedian fold below which there is a black streak on it, at vein 1 angled inwards to near the antemedial line; an oblique dark shade from termen below apex to the angle of postmedial line and an oblique shade from termen at vein 2. Hind wing yellow, the basal half of inner area suffused with brown; a black medial band, oblique to submedian fold, then bent

inwards to inner margin, its outer edge excurved beyond lower angle of cell; terminal area black to below vein 2, then connected by a bar with a patch at vein 1, its inner edge angled inwards at vein 2, a yellow patch at apex, then a series of slight yellow spots in the interspaces to vein 2; cilia yellow chequered with brown except towards apex and tornus. Underside of fore wing pale ochreous yellow, a slight oblique brown shade from median nervure before middle to vein 1, an oblique blackish medial band expanding towards costa and angled outwards in submedian fold, terminal area black-brown shading to grey-brown at termen; hind wing pale ochreous yellow, the inner area deeper yellow, the bands as above.

Hab. W. CHINA, Ta-chien-lu (*Pratt*), 1 ♀ type. *Exp.* 80 millim.

7169. *Mormonia abamita*.

Catocala abamita, Brem. & Grey, Schmett. Nord. Chin. p. 19 (1853).

Catocala scortum, Christ. Iris, vi. p. 94 (1893); Alph. Rom. Mém. ix. p. 162, pl. 11. f. 4; Staud. Cat. Lep. pal. p. 249.

Head and thorax grey suffused with reddish brown; palpi whitish at base; pectus whitish; legs whitish tinged with brown, the tarsi blackish ringed with white; abdomen grey-brown, the hair at base and segmental lines yellow-brown, the ventral surface whitish. Fore wing grey slightly suffused with reddish brown and irrorated with dark brown, the veins with slight dark streaks; an oblique black-brown fascia from base of costa to below end of cell; antemedial line obsolete on costal area, blackish defined on inner side by whitish, oblique and sinuous from the fascia to inner margin; reniform slightly defined by blackish and its centre by red-brown, an oblique blackish striga above it from costa; a whitish spot defined by blackish below end of cell, connected by a sinus on vein 2 with the postmedial line, which is blackish, slightly bent outwards below costa, then oblique, very acutely angled outwards and produced to streaks above and below vein 5, then slighter, inwardly oblique and dentate, angled outwards in submedian fold to near termen with which it is connected by a black streak, with a strong black streak on it below submedian fold, and angled inwards on vein 1 nearly to the medial line; subterminal line indistinct, whitish, waved, oblique from costa to below vein 6; a slight oblique dark shade from termen below apex. Hind wing orange-yellow; the base of submedian interspace slightly tinged with brown; a rather narrow black medial band, oblique to submedian fold, then bent inwards to above inner margin, its outer edge slightly excurved at vein 5; a black terminal band almost or quite interrupted at submedian fold, its inner edge slightly angled inwards at vein 2; the termen with apical yellow patch, then slight marks in the interspaces; cilia yellowish, white

chequered with brown at veins 6 to 2. Underside of fore wing pale ochreous yellow, a slight brown antemedial shade on inner area, an oblique black medial band slightly angled outwards at submedian fold, its inner edge incurved at the discocellulars, terminal area blackish shading to grey-brown at termen, its inner edge curved; hind wing as above but pale ochreous yellow except the inner area, the outer band subterminal, the termen ochreous yellow.

Hab. N. CHINA; CENTR. CHINA, Foo-chow (*de la Touche*), 1 ♂, Kiukiang (*Pryer*), 2 ♀. *Esp.* 74-76 millim.

7170. *Mormonia delilah*. (Plate CXCv. fig. 1.)

Catocala delilah, Streck. Lep. Rhop. & Het. p. 96, pl. xi. f. 7 (1874); Smith, Cat. Noct. N. Am. p. 337.

Catocala adoptiva, Grote, Trans. Am. Ent. Soc. v. p. 96 (1874).

Head and thorax red-brown mixed with some reddish ochreous; tegulæ with black-brown lines at middle and tips, the prothorax with blackish bar, the patagia with black-brown lines near edges; pectus grey-brown; legs grey mixed with black, the tarsi black ringed with white; abdomen rufous, the ventral surface ochreous white. Fore wing greenish ochreous irrorated and suffused with red-brown; subbasal line black, waved, from costa to vein 1; antemedial line double, blackish, oblique, sinuous; reniform defined by blackish and with its centre defined by blackish, its outer edge somewhat dentate, a blackish spot above it on costa; an oblique spot defined by black below end of cell, connected by a sinus on vein 2 with the postmedial line, which is black, bent outwards below costa, then oblique, sinuous and with some ochreous suffusion before it, acutely angled outwards above and below vein 5, then incurved, sinuous, and defined on outer side by ochreous, bidentate at submedian fold, and strongly incurved at vein 1; subterminal line ochreous defined on outer side by blackish, dentate, oblique from costa to below vein 7, where it is met by a slight oblique dark shade from termen below apex; a series of black striæ before termen defined on outer side by ochreous. Hind wing orange, the inner area suffused with brown; a medial black band, oblique to submedian fold, then narrower and bent inwards to vein 1, its outer edge excurved at vein 5; a black subterminal band, its inner edge slightly waved, angled inwards at vein 2 and outwards at submedian fold, its outer edge crenulate to the termen and cilia at veins 6 to 2. Underside of fore wing orange, an oblique black shade from below costa before middle to the obliquely curved black medial band narrowing to inner margin at vein 1, a curved black subterminal band, the termen ochreous irrorated with brown, a crenulate black terminal line, cilia chequered ochreous and fuscous; hind wing as above, but the costal area and termen ochreous, the

medial band ending at submedian fold, the subterminal band with its outer edge not crenulate.

Hab. U.S.A., Illinois, Nebraska, Kansas, Texas (*Meske*), 1 ♂, 1 ♀, Dallas (*Boll*), 3 ♀ type *adoptiva*, Arizona. *Exp.* 68-76 millim.

Larva. Food-plant, Oak.

7171. *Mormonia chelidonia*. (Plate CXCV. fig. 6.)

Catocala chelidonia, Grote, Papilio, i. p. 159 (1881); id. Ill. Essay, p. 67, pl. iv. f. 41; Smith, Cat. Noct. N. Am. p. 333.

Head and thorax purplish grey mixed with dark brown; palpi with some white at base and white ring at extremity of 2nd joint; frons with black lateral bars; tegulæ with black medial line, the patagia with some black scales near edges; pectus brownish white; legs dark brown and whitish, the tarsi black ringed with white; abdomen yellow tinged with rufous, the basal crests brown and grey, the anal tuft white at tip, the ventral surface white tinged with brown. Fore wing purplish grey almost uniformly suffused and irrorated with fuscous brown; subbasal line black, sinuous, from costa to submedian fold; antemedial line black, oblique, sinuous; reniform faintly defined by brown, its outer edge somewhat dentate, an oblique black bar above it from costa; a pale rounded spot defined by black below end of cell; postmedial line black, bent outwards below costa, then obliquely downcurved, angled outwards above vein 5 and slightly excurved below it, then inwardly oblique, slightly excurved at submedian fold and angled inwards at vein 1; a faint whitish subterminal line, obliquely incurved from costa to below vein 6, then slightly waved; a series of black points before termen with whitish marks beyond them a dark line at base of cilia. Hind wing orange-yellow, the inner area with some red-brown suffusion; a narrow black medial band, oblique to submedian fold, then bent inwards and ending at vein 1, its outer edge excurved at vein 5 and submedian fold; a black terminal band from costa to just below vein 2 and a patch at vein 1, the inner edge of the band oblique to vein 4 and angled inwards at vein 2; the termen narrowly yellow towards apex, then with slight yellow marks in the interspaces to vein 2; cilia white, chequered with brown at veins 6 to 2, brown towards tornus. Underside of fore wing yellow, the costa grey-brown, an oblique brown antemedial shade from costa to vein 1, an oblique black medial band narrowing to inner margin, its outer edge excurved at vein 5, the terminal area fuscous brown, its inner edge curved; hind wing as above, the basal and postmedial costal areas whitish irrorated with brown, the termen without yellow.

Hab. U.S.A., Arizona, Prescott, 1 ♂, 1 ♀ type (*Kunzé*), 2 ♂, 5 ♀. *Exp.* 48-54 millim.

Larva. Food-plant, Scrub-Oak.

7172. *Mormonia neonympha*.

Noctua neonympha, Esp. Schmett. iv. pl. 198. ff. 1, 2 (1796); Hübn. Eur. Schmett., Noct. f. 450; Fr. Neue Schmett. pl. 299; Dup. Léop. Fr. Suppl. iii. p. 572, pl. 48. f. 1; Staud. Cat. Lep. pal. p. 249.
Catocala cohærens, Schultz, Ent. Zeit. xxii. p. 169 (1909).

Head and thorax grey-white mixed with brown; palpi with the 1st joint and the 2nd joint in front white; abdomen with black lateral bars; tegulæ with two slight brown medial lines and brown line at tips; pectus and legs white mixed with red-brown, the tarsi blackish ringed with white; abdomen orange-yellow, the ventral surface white. Fore wing grey suffused with red-brown and irrorated with dark brown, the terminal area somewhat paler; subbasal line black, sinuous, from costa to submedian fold; antemedial line double, the inner line indistinct, the outer black, oblique, sinuous; reniform with its centre and inner edge defined by brown, a blackish bar above it from costa; an oblique rather triangular spot defined by black below end of cell, connected by a streak on vein 2 with the postmedial line, which is black with a red-brown band on its outer edge, bent outwards below costa, then obliquely downcurved, acutely angled outwards above and below vein 5, then inwardly oblique and dentate; subterminal line very faint, whitish, obliquely downcurved from costa to below vein 6; a series of black points just before termen slightly defined on outer side by whitish; cilia pale with red-brown lines near base and at tips. Hind wing orange-yellow; an obliquely curved medial black band from costa to submedian fold, its edges sinuous; a black terminal band from costa to just below vein 2 at which its inner edge is incurved, and a black spot at vein 1; the termen with a narrow yellow patch at apex, then with slight yellow marks in the interspaces; cilia white with brown marks at veins 6 to 2. Underside of fore wing yellow, an oblique black medial band with slightly sinuous edges, followed by a yellowish white band, the terminal area grey-brown to submedian fold, its inner edge curved; hind wing as above but the medial band obsolescent on costal area, the terminal band grey-brown.

Ab. 1. *cohærens*. Hind wing with the spot at vein 1 confluent with the terminal band.

Hab. S. RUSSIA, Sarepta, Zeller, Frey, Mutzell, D'Emmich and Leech Colls.; ARMENIA; KHURDISTAN; SYRIA, Mardin; PERSIAN GULF, Fao (*Cumming*), 3 ♂, 1 ♀; W. TURKESTAN, Turcomania, Sarawschan, Ferghana, Issyk-Kul; W. SIBERIA, Altai; E. TURKESTAN, Ili, 2 ♂, 1 ♀, Kuldja, 1 ♂. *Exp.* 58-68 millim.

Larva. Kirby, Butt. & Moths Eur. p. 277; Hfñ. Raup. p. 149.

Dark fuscous green mottled with brown; a yellowish lateral stripe; the ventral surface yellowish. Food-plants: *Glycyrrhiza* and Oak. 6.

7173. ? *Mormonia frederici*. (Plate CXCv. fig. 2.)

Catocala frederici, Grote, Trans. Am. Ent. Soc. iv. p. 14 (1872); id. Ill. Essay, p. 70, pl. iv. f. 44; Smith, Cat. Noct. N. Am. p. 336.

♀. Head and thorax white mixed with brownish grey, the prothorax with an ochreous shade; palpi fuscous irrorated with white; frons with lateral black bars; antennæ blackish; legs fuscous and white, the tarsi black ringed with white, (hind legs wanting); abdomen yellow, the ventral surface white tinged with yellow. Fore wing creamy white mostly suffused with pale blue-grey and slightly irrorated with fuscous brown; a slight curved subbasal dark striga from costa; antemedial line indistinct, double, oblique, waved; a slight dark discoidal lunule, a dark striga above it from costa; an irregular creamy white spot below end of cell faintly defined by dark scales; postmedial line slight, dark defined on outer side by creamy white and with a small blackish spot at costa, bent outwards below costa, then oblique and dentate, angled outwards above and below vein 5, then inwardly oblique and dentate, a faint rufous shade beyond it at middle; subterminal line slight, dark, waved, defined on inner side by whitish towards inner margin, oblique from costa to below vein 6; a series of blackish points with white points beyond then before termen. Hind wing clear yellow; a narrow oblique black band from middle of costa to submedian fold, then bent inwards and ending at vein 1, its outer edge slightly angled outwards at vein 5; a terminal black band from costa to vein 2 and a small spot above tornus, the inner edge of the band obliquely curved, the outer crenulate to termen between veins 6 and 2; cilia with the tips white and a brown line through them between veins 6 and 2. Underside of fore wing yellow, an oblique fuscous antemedial shade from below costa to vein 1, an obliquely curved medial band narrowing to a point at vein 1 and a curved subterminal band; hind wing as above but the subterminal band not crenulate to termen at middle.

Hab. U.S.A., Texas, 1 ♀, Colorado, New Mexico. Exp. 62 millim.

7174. *Mormonia illecta*. (Plate CXCv. fig. 3.)

Catocala illecta, Wlk. xiii. 1205 (1857); Smith, Cat. Noct. N. Am. p. 336.

Catocala magdalena, Streck. Lep. Rhop. & Het. pp. 93, 97, pl. xi. f. 9 (1874).

♀. Head and thorax grey-white tinged with rufous, the head, tegulæ and prothorax with bright rufous mixed; palpi with the 1st joint and the 2nd joint in front white; tegulæ with blackish medial line, the patagia with some black scales near upper edge; pectus and legs white mixed with some red-brown; abdomen orange-yellow, the crests at base rufous tipped with white, the extremity with some white, the ventral surface white. Fore wing grey-

white tinged with rufous and slightly irrorated with blackish especially on the veins; subbasal line black, angled outwards below costa and ending at submedian fold; antemedial line black slightly defined on inner side by white, obliquely curved and sinuous, incurved at vein 1; reniform rather small, defined by blackish and with white centre defined by blackish, a slight brown mark above it on costa; a spot defined by blackish below end of cell, connected by a sinus on vein 2 with the postmedial line, which is fine, black, slightly bent outwards below costa, then oblique and sinuous, acutely angled outwards above and below vein 5, then inwardly oblique, dentate, angled outwards at submedian fold and incurved at vein 1; subterminal line whitish, minutely waved, oblique from costa to below vein 6; a series of blackish points slightly defined on outer side by white just before termen. Hind wing golden yellow; an obliquely waved medial black band from costa to vein 1, its outer edge slightly excurved at vein 5; a black terminal band; the termen with narrow yellow patch towards apex, then with slight yellow marks in the interpaces; cilia white, chequered with brown to vein 2. Underside of fore wing yellow with the costa grey-white, a slight rufous antemedial mark below the cell, an oblique black medial band from costa to which it narrows to vein 1, its inner edge angled inwards below costa, a curved fuscous brown subterminal band from below costa to vein 1, the area beyond it grey-white; hind wing as above but the costal half whitish irrorated with red-brown, the medial band narrow, obsolete towards costa and incurved at discal fold, the subterminal band obsolete towards costa, the termen white irrorated with red-brown.

Hab. U.S.A., ? New York (*Doubleday*), 1 ♀ type, Illinois, Nebraska, Texas, Dallas (*Boll*), 1 ♀. *Exp.* 76 millim.

Larva. French, Can. Ent. xxiv. p. 307.

Dirty white with blackish dorsal and lateral bands and a clear white sublateral stripe; subdorsal and substigmatal series of orange patches, two on each somite; somite 1 with the anterior half orange with a series of black spots; somites 2 and 3 with irregular orange transverse bands; the fold above the legs black with an orange spot on each somite; no fringes; head olive with a dorsal and four black lateral stripes. Food-plant, Honey-Locust.

7175. *Mormonia bella*.

Catocala bella, Butl. Cist. Ent. ii. p. 242 (1877); id. Ill. Het. B.M. iii. p. 25, pl. 46. f. 10; Staud. Cat. Lep. pal. p. 249.

Catocala serenides, Staud. Stett. Ent. Zeit. 1838, p. 268; id. Rom. Mém. vi. p. 589, pl. 11. f. 6.

Head and thorax grey-white mixed with brown; palpi white towards base; head white at sides, the frons with black lateral bars; prothorax with reddish brown band, the metathorax with some red-brown; pectus and legs grey mixed with fuscous, the

tarsi blackish ringed with white; abdomen reddish brown, the ventral surface white. Fore wing blue-grey suffused with brown except on costal area and irrorated with blackish; subbasal line black, sinuous, from costa to submedian fold; antemedial line black slightly defined on outer side by blue-grey, waved and somewhat oblique; reniform with brown centre and blue-grey annulus defined by fuscous suffusion, an oblique black shade above it from costa; an irregular spot defined by black below end of cell; postmedial line black, slightly defined on each side by blue-grey towards inner margin, bent outwards below costa, then obliquely downcurved, acutely angled outwards above vein 5, then inwardly oblique and dentate, bidentate at submedian fold and angled inwards at vein 1; subterminal line diffused, blue-grey defined on each side by fuscous, dentate, oblique from costa to below vein 6; a series of blackish points before termen defined on outer side by whitish. Hind wing orange, the basal and inner areas suffused with dark red-brown leaving some orange beyond the cell before the obliquely curved black medial band, its outer edge excurved at vein 5; terminal area broadly black, its inner edge oblique from costa to vein 4; the termen with slight yellow marks at apex; cilia white at apex, then chequered white and brown. Underside of fore wing white faintly tinged with ochreous brown on basal half, an oblique black-brown shade from below costa before middle to the obliquely curved black medial band with its outer edge excurved at vein 5 at inner area, terminal area black, its inner edge oblique to vein 4, the termen greyish; hind wing as above but with hardly any brown on basal and inner areas, the basal costal area and postmedial area to discal fold white, the apex narrowly white.

Ab. 1. Fore wing with less grey suffusion.

Hub. E. SIBERIA, Amurland, 3 ♂, 3 ♀, Ussuri; JAPAN, Oiwake (Pryer), 2 ♂, 2 ♀, Chinzenji (Lewis), 1 ♀, Yokohama (Jonas, Strickland), 2 ♂ type. *Exp.* 62-68 millim.

Genus CATOCALA.

	Type.
<i>Catocala</i> , Sehrank, Fauna Boica, ii. 2, p. 158 (1802)	<i>fraxini</i> .
<i>Eunetis</i> , Hübn. Verz. p. 276 (1827)	<i>puerpera</i> .
<i>Lamprosia</i> , Hübn. Verz. p. 277 (1827)	<i>amatix</i> .
<i>Eucora</i> , Hübn. Verz. p. 278 (1827)	<i>neonympha</i> .

Proboscis fully developed; palpi upturned, the 2nd joint reaching to middle of frons and rather broadly scaled, the 3rd moderate; frons smooth, with tuft of hair; eyes large, round; antennæ of male ciliated; thorax clothed with hair and scales mixed, the pro- and metathorax with spreading crests, the mesothorax with slight paired crests; tibiæ moderately fringed with hair, the fore tibiæ not spined, the mid and hind tibiæ spined, the latter between the spurs only, the mid tibiæ of male dilated with a fold containing a tuft of long hair; abdomen with dorsal ridges of hair and slight hairy crests on basal segments. Fore wing triangular, the apex rounded, the termen evenly curved, crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the cell about one-third length of wing; veins 3, 4 from angle; 5 fully developed from above angle of cell; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

A. Hind wing black-brown.

- a. Hind wing without postmedial band..... *tristis*.
 b. Hind wing with curved postmedial band.
 *a*¹. Hind wing with the postmedial band bluish white.
 *a*². Hind wing with the postmedial band very narrow. *elda*.
 *b*². Hind wing with the postmedial band broader..... *relicta*.
 *b*¹. Hind wing with the postmedial band grey-blue and
 broad *fraxini*.

B. Hind wing crimson.

- a. Hind wing with the medial band obliquely curved.
 *a*¹. Hind wing with the inner area suffused with
 brown.
 *a*². Hind wing with the medial band broad and ex-
 tending to inner margin *cara*.
 *b*². Hind wing with the medial band narrow and
 ending at vein 1 *conjuncta*.
 *b*¹. Hind wing with the inner area not suffused with
 brown.
 *a*². Hind wing with the medial band not strongly
 excurred at vein 5.
 *a*³. Abdomen grey, more or less tinged with
 brown.
 *a*⁴. Fore wing without black fascia below base
 of cell *concupiens*.
 *b*⁴. Fore wing with black fascia below base of cell.
 *a*⁵. Fore wing with the antemedial line mode-
 rately oblique on costal half.
 *a*⁶. Hind wing pale crimson *optata*.
 *b*⁶. Hind wing deep crimson *sultana*.
 *b*⁵. Fore wing with the antemedial line ex-
 tremely oblique on costal half..... *leechi*.
 *b*³. Abdomen crimson *pacta*.
 *b*². Hind wing with the medial band strongly ex-
 curred at vein 5.
 *a*³. Hind wing with the terminal band not inter-
 rupted at submedian fold..... *electa*.
 *b*³. Hind wing with the terminal band interrupted
 at submedian fold *sponsalis*.
 b. Hind wing with the medial band oblique to submedian
 fold, then more or less bent inwards towards inner
 margin.
 *a*¹. Hind wing with the medial band incurved beyond
 lower angle of cell.
 *a*². Fore wing strongly suffused with brown and
 blackish *promissa*.
 *b*². Fore wing whiter and much less suffused with
 brown and blackish *electra*.
 *b*¹. Hind wing with the medial band not incurved
 beyond lower angle of cell.
 *a*². Hind wing with the terminal band not inter-
 rupted at submedian fold.
 *a*³. Fore wing ochreous tinged with red-brown.
 *a*⁴. Hind wing with the medial band not angled
 outwards in submedian fold *juncta*.
 *b*⁴. Hind wing with the medial band angled
 outwards in submedian fold *timur*.
 *b*³. Fore wing grey.
 *a*⁴. Fore wing with black streak below base of
 cell.
 *a*⁵. Fore wing strongly tinged with brown ... *lupina*.

- b*⁵. Fore wing white slightly tinged with brown *desiderata*.
*b*⁴. Fore wing without black streak below base of cell *optima*.
*b*². Hind wing with the terminal band interrupted at submedian fold *amabilis*.
 C. Hind wing scarlet.
a. Hind wing with the medial band obliquely curved.
*a*¹. Hind wing with the medial band strongly excurved at middle.
*a*². Hind wing on underside with the costal area white *nupta*.
*b*². Hind wing on underside white from costa to median nervure and vein 3.
*a*³. Fore wing strongly tinged with red-brown..... *szechuana*.
*b*³. Fore wing blue-grey with hardly any brown tinge *concupia*.
*b*¹. Hind wing with the medial band not excurved at middle.
*a*². Fore wing grey suffused with brown.
*a*³. Fore wing with curved black fascia from middle of costa to termen below apex *marmorata*.
*b*³. Fore wing without curved black fascia from middle of costa to termen below apex.
*a*⁴. Fore wing strongly suffused with red-brown and with oblique dark patch from costa at end of cell met by an oblique shade from termen below apex *irene*.
*b*⁴. Fore wing slightly suffused with brown and without oblique dark patch from costa at end of cell met by an oblique dark shade from termen below apex.
*a*⁵. Fore wing suffused with dark brown.
*a*⁶. Fore wing with black streak below base of cell and oblique streak from termen below apex *parta*.
*b*⁶. Fore wing without black streak below base of cell or oblique streak from termen below apex.
*a*⁷. Fore wing with the subterminal line whitish defined by fuscous.
*a*⁸. Hind wing deep scarlet *californica*.
*b*⁸. Hind wing pale scarlet *faustina*.
*c*⁸. Hind wing orange-scarlet *luciana*.
*b*⁷. Fore wing with the subterminal line purplish grey defined by fuscous..... *electilis*.
*b*⁵. Fore wing suffused with olive-brown *elocata*.
*c*⁵. Fore wing suffused with ochreous brown ... *oberthuri*.
*b*². Fore wing grey suffused with fuscous black.
*a*³. Fore wing without whitish suffusion beyond the middle of the postmedial line.
*a*⁴. Hind wing with the medial black band ending at vein 1.
*a*⁵. Fore wing faintly irrorated with blue-grey *francisca*.
*b*⁵. Fore wing strongly irrorated with blue-grey..... *allusa*.
*c*⁵. Fore wing blue-grey mixed with white ... *pura*.
*b*⁴. Hind wing with the medial band extending to inner margin *unijuga*.

- b*³. Fore wing with whitish suffusion beyond the middle of the postmedial line.
*a*⁴. Hind wing with the medial band ending at vein 1.
*a*⁵. Fore wing with the basal half largely white and blue-grey.
*a*⁶. Hind wing with the outer edge of the black medial band hardly excurved at vein 5.
*a*⁷. Fore wing with diffused black streak below base of cell *semirelictata*.
*b*⁷. Fore wing without black streak below base of cell *nevadensis*.
*b*⁸. Hind wing with the outer edge of the black medial band strongly excurved at vein 5 *adulltera*.
*b*⁹. Fore wing with the basal half almost entirely black.
*a*⁶. Fore wing with the postmedial line strongly angled outwards above vein 5. *hermia*.
*b*⁶. Fore wing with the postmedial line slightly angled outwards above vein 5. *grotiana*.
*b*⁴. Hind wing with the medial band extending to inner margin *briseis*.
b. Hind wing with the medial black band oblique to submedian fold, then more or less bent inwards towards inner margin.
*a*¹. Fore wing white and blue-grey, more or less irrorated with black.
*a*². Fore wing with the postmedial line acutely angled outwards above vein 5.
*a*³. Fore wing strongly irrorated with black.
*a*¹. Hind wing with the medial band slightly curved inwards below submedian fold *beaniana*.
*b*⁴. Hind wing with the medial band bent inwards below submedian fold *augusta*.
*b*³. Fore wing less strongly irrorated with black.
*a*⁴. Fore wing with the spot below end of cell connected with the postmedial line by a sinus.
*a*⁹. Fore wing with the postmedial line strongly dentate between veins 4 and 2... *mescei*.
*b*⁵. Fore wing with the postmedial line slightly dentate between veins 4 and 2 ... *repudiata*.
*b*⁴. Fore wing with the spot below end of cell not connected with the postmedial line.
*a*⁵. Fore wing tinged with red on underside... *jessica*.
*b*⁵. Fore wing not tinged with red on underside. *stretchi*.
*b*². Fore wing with the postmedial line hardly angled outwards above vein 5 *hippolyta*.
*b*¹. Fore wing grey tinged with brown.
*a*². Fore wing with the postmedial line slightly angled outwards above vein 5 and in submedian fold.
*a*³. Fore wing with the antemedial line oblique to submedian fold with pale band beyond it, then erect *neglecta*.
*b*³. Fore wing with the antemedial line oblique throughout and without a pale band beyond it.
*a*⁴. Fore wing slightly tinged with olive-brown; hind wing with the terminal band not interrupted at submedian interspace.
*a*⁵. Fore wing with the ground-colour white... *deducta*.

- b*⁵. Fore wing with the ground-colour blue-grey.
*a*⁶. Hind wing with the apical patch red ... *afghana*.
*b*⁶. Hind wing with the apical patch white.
*a*⁷. Fore wing without broad fuscous black medial shade *fuscinaupta*.
*b*⁷. Fore wing with broad fuscous black medial shade *prolifica*.
*b*⁴. Fore wing strongly tinged with red-brown; hind wing with the terminal band interrupted at submedian interspace *puerpera*.
*c*⁴. Fore wing grey mixed with rufous *aspasia*.
*d*⁴. Fore wing rufous mixed with grey *lesbia*.
*b*². Fore wing with the postmedial line strongly angled outwards above vein 5.
*a*³. Fore wing with the postmedial line slightly angled outwards in submedian fold.
*a*⁴. Fore wing purple-grey slightly suffused with red-brown *junctura*.
*b*⁴. Fore wing purple-grey strongly suffused with red-brown *babayaga*.
*b*³. Fore wing with the postmedial line strongly angled outwards in submedian fold *remissa*.
D. Hind wing orange-red to orange-yellow *ilia*.
E. Hind wing yellow or orange yellow.
a. Fore wing with the reniform not filled in with black.
*a*¹. Fore wing without oblique black fascia on outer antemedial line from costa to submedian fold.
*a*². Hind wing with the medial band obliquely curved.
*a*³. Hind wing with the basal area suffused with brown, the postmedial band only yellow.
*a*⁴. Hind wing with the basal area suffused with grey-brown, the postmedial band yellowish white *lara*.
*b*¹. Hind wing with the basal area suffused with red-brown, the postmedial band golden-yellow *cerogama*.
*b*³. Hind wing with the basal area not suffused with brown except on inner area *ixion*.
*b*². Hind wing with the medial band oblique to submedian fold, then more or less bent inwards towards inner margin.
*a*³. Hind wing with the medial band strongly excurved at vein 5.
*a*⁴. Fore wing on underside with the postmedial band yellow.
*a*⁵. Fore wing grey-white, the basal area suffused with brown.
*a*⁶. Hind wing with the medial black band moderately broad, the discoidal lunule on underside conjoined to the band ... *deuteronympha*.
*b*⁶. Hind wing with the medial black band narrow, the discoidal lunule on underside separate from the band *proxenata*.
*b*⁵. Fore wing greenish grey, the black markings almost obsolete *obscura*.
*c*⁵. Fore wing leaden grey suffused with red-brown and irrorated with dark brown ... *nymphæoides*.
*b*⁴. Fore wing on underside with the postmedial band whitish.
*a*⁵. Fore wing with the basal area dark brown, the medial area suffused with white *omphale*.

- b*⁵. Fore wing with the basal area concolorous.
*a*⁶. Fore wing silvery grey-brown, the reniform forming a white patch..... *agitatrix*.
*b*⁶. Fore wing white or purplish grey suffused with brown.
*a*⁷. Fore wing with black streak below the cell from base to antemedial line, the postmedial line very acutely angled outwards above and below vein 5 *clintoni*.
*b*⁷. Fore wing without black streak below the cell from base to antemedial line, the postmedial line slightly angled outwards above and below vein 5 ... *gracilis*.
*b*³. Hind wing with the medial band not strongly excurved at vein 5.
*a*⁴. Fore wing on underside with the postmedial band yellow.
*a*⁵. Fore wing grey suffused with red-brown.
*a*⁶. Hind wing with the outer edge of the medial band angled outwards at vein 5. *armandi*.
*b*⁶. Hind wing with the outer edge of the medial band not angled outwards at vein 5.
*a*⁷. Hind wing with the terminal band broad *abacta*.
*b*⁷. Hind wing with the terminal band narrow, and reduced to a bar in submedian interspace *nymphagoga*.
*b*⁵. Fore wing greenish ochreous, the antemedial area suffused with red-brown..... *patala*.
*b*⁴. Fore wing on underside with the postmedial area whitish.
*a*⁵. Fore wing dark brown.
*a*⁶. Hind wing with the inner area yellow with a black-brown fascia in submedian fold *doerriesi*.
*b*⁶. Hind wing with the inner area suffused with reddish brown.
*a*⁷. Fore wing with the reniform defined by greenish grey, the subterminal line slightly waved *tapestrina*.
*b*⁷. Fore wing with the reniform not defined by greenish grey, the subterminal line dentate *conversa*.
*b*⁵. Fore wing pale grey *contemnenda*.
*b*¹. Fore wing with oblique black fascia on outer antemedial line from costa to submedian fold.
*a*². Fore wing without wedge-shaped black mark before lower part of reniform.
*a*³. Fore wing with the spot below end of cell not defined on inner side by a black lunule.
*a*⁴. Fore wing pale grey-brown *hymenæa*.
*b*⁴. Fore wing violaceous grey *anna*.
*b*³. Fore wing with the spot below end of cell defined on inner side by a black lunule..... *abbreviatella*.
*b*². Fore wing with wedge-shaped black mark before lower part of reniform *whitneyi*.
b. Fore wing with the reniform filled in with black..... *nuptialis*.

7176. *Catocala tristis*. (Plate CXCV. fig. 7.)

Catocala tristis, W. H. Edw. Proc. Ent. Soc. Phil. ii. p. 511 (1864);
 Streck. Lep. Rhop. & Het. p. 17, pl. iii. f. 1; Smith, Cat. Noct. N. Am.
 p. 347.

♂. Head and thorax white mixed with dark brown; palpi white mixed with blackish; pectus white; tarsi brown ringed with white; abdomen grey suffused with fuscous brown, the ventral surface white with slight brown segmental lines. Fore wing white irrorated with dark brown, the inner area suffused with black-brown, the terminal area with dark brown; subbasal line blackish, angled outwards below costa and ending at median nervure, a slight blackish streak above base of vein 1; antemedial line black-brown, oblique and sinuous to submedian fold, interrupted in lower part of cell and with quadrate black-brown patch on its outer side below the cell; reniform with whitish centre defined by black-brown, a patch of dark brown suffusion above it on costal area; postmedial line slight, dark, defined on outer side by a broad patch of white suffusion from vein 7 to submedian fold, oblique and sinuous to below vein 7, then minutely waved and with slight dark points at the veins, incurved at discal fold; subterminal line white, diffused, waved, obsolete on inner area; a series of dark points before termen. Hind wing black-brown, the cilia white towards apex. Underside of fore wing black-brown, a white postmedial band somewhat oblique to below vein 4 and obsolescent on inner area, the apex white; hind wing black-brown, the costal edge and apical part of termen narrowly white.

Hab. CANADA; U.S.A., Northern, Eastern, Middle, and Central States, Massachusetts, Weston, 1 ♂. *Exp.* 50 millim.

7177. *Catocala elda*. (Plate CXCV. fig. 4.)

Catocala elda, Behr, Can. Ent. xix. p. 199 (1887); Smith, Cat. Noct. N. Am. p. 347.

♀. Head and front of thorax fuscous black mixed with grey-white; the hinder part of thorax brown mixed with white; palpi at base and pectus white; fore legs fuscous irrorated with white, the mid and hind legs white slightly irrorated with fuscous; abdomen fuscous black with grey-white segmental lines, the hair at base brown, the extremity grey, the ventral surface white. Fore wing grey-white thickly irrorated with fuscous black and ochreous brown; a slight waved, black, subbasal line from costa to submedian fold; antemedial line indistinctly double, waved, ex-curved above inner margin; a dark medial shade with a lunulate white spot on it below lower angle of cell; postmedial line fuscous black slightly defined on outer side by white, dentate, oblique to below vein 7, where it is acutely angled outwards, then incurved; subterminal line whitish, slightly defined on each side by fuscous, dentate, incurved below vein 6 and ending at tornus; a series of black striæ before termen. Hind wing fuscous black; a rather

narrow curved white postmedial band very faintly tinged with purplish; some white on termen from apex to submedian fold with blackish points on it before termen; cilia white. Underside of fore wing black, some white at base, the basal half of costa white with an oblique white medial band from it to submedian fold, an oblique white postmedial band, slightly incurved below costa, narrowing below vein 2, angled outwards in submedian fold and ending close to tornus, the termen suffused with grey from apex to vein 2 with some small black spots on termen. Hind wing with the basal half white with black discoidal lunule, the terminal half black with curved white postmedial band and some grey on termen from apex to vein 2.

Hab. BR. COLUMBIA, New Westminster (*Poling*), 1 ♀; U.S.A., Oregon. *Exp.* 84 millim.

7178. *Catocala relictæ*. (Plate CXCV. fig. 5.)

Catocala relictæ, Wlk. xiii. 1192 (1857); Streck. Lep. Rhop. & Het. p. 19, pl. iii. ff. 5, 6; Smith, Cat. Noct. N. Am. p. 346.

Catocala phrynia, H. Edw. Bull. Brooklyn Ent. Soc. iii. p. 54 (1880).

Catocala bianca, H. Edw. Bull. Brooklyn Ent. Soc. iii. p. 54 (1880).

Catocala clara, Beutenm. Bull. Am. Mus. xix. p. 506 (1903).

Head and thorax dark reddish brown mixed with white, the basal half of tegulae whiter; palpi white at base; pectus and legs white, the tibiae irrorated with brown, the tarsi banded black and white; abdomen fuscous brown, grey towards extremity, the ventral surface white. Fore wing white, the basal area to beyond the antemedial line and the postmedial area irrorated and suffused with fuscous brown; subbasal line slight, dark, excurved below costa and ending at submedian fold; antemedial line double, fuscous brown filled in with white, oblique, sinuous; reniform elliptical, fuscous brown with slight white lunule in centre, a blackish bar above it from costa; a rather triangular white spot defined by fuscous brown below end of cell; a sinuous fuscous-brown shade just beyond the cell from vein 7 to inner margin; postmedial line fuscous brown, bent outwards below costa, then minutely waved and somewhat oblique below vein 6, defined by white on outer side before the brown suffusion on postmedial area; subterminal line diffused, white defined on outer side by fuscous brown, dentate, the fuscous brown extending to termen at submedian fold; a series of small blackish spots before termen. Hind wing black-brown, the hair on inner margin white; a curved white postmedial band with a faint bluish tinge; the termen white from apex to vein 2, with dark striae in the interspaces; cilia pure white. Underside of fore wing black-brown, the base and costal area to middle whitish, an oblique white medial patch from below costa to submedian fold, a white postmedial band, oblique to vein 4 and narrowing towards inner margin, the termen whitish with a fine waved dark terminal line and series of points in the interspaces; hind wing white with a faint bluish tinge, a black discoidal lunule,

curved medial band from just below costa to just above inner margin, expanding at middle, a curved band on terminal area leaving the termen to below vein 2 and the cilia white.

Ab. 1. *phrynica*. Fore wing evenly irrorated with fuscous.

Ab. 2. *clara*. Fore wing white with hardly any fuscous irroration.

Hab. CANADA, Nova Scotia (*Redman*), 1 ♂ type, Toronto (*Gibson*), 1 ♂, Manitoba, Cartwright (*Heath*), 1 ♂, 1 ♀, Miniota (*Dennis*), 1 ♂, 1 ♀; U.S.A., New York, 8 ♂, 4 ♀, Middle States, Oregon, Colorado. *Exp.* 78–86 millim.

Larva. Clark, Can. Ent. xx. p. 17.

Bluish or greenish cream-colour thickly irrorated with pale yellow-brown, the 9th, 10th, and 12th somites with black markings, the rest of dorsum sometimes with slight black irroration; head white with black vertical and transverse marking above, forming a gridiron pattern. Food-plants, White Birch and Silver Poplar.

7179. *Catocala fraxini*.

Noctua fraxini, Linn. Syst. Nat. ed. x. p. 512 (1758); Esp. Schmett. iv. pl. 101; Hübn. Eur. Schmett., Noct. f. 327; Godt. Lép. Fr. v. p. 50, pl. 45. f. 1; Frr. Neue Beitr. pl. 619; Staud. Cat. Lep. pal. p. 247.

Catocala mærens, Fuchs, Jhrb. Nass. xlii. p. 210 (1889).

Catocala gaudens, Staud. Cat. Lep. pal. p. 247 (1901).

Catocala maculata, Kusnezow, Rev. Russe. Ent. i. p. 230 (1901).

Catocala contigua, Schultz, Ent. Zeit. Guben. xx. p. 86 (1906).

Catocala angustata, Schultz, Ent. Zeit. Guben. xx. p. 86 (1906).

Head and thorax grey-white mixed with fuscous brown, the tegulæ with slight dark medial line and black line at tips, the patagia with slight dark streaks; pectus white; legs white irrorated with brown, the fore tibiæ at extremities and the tarsi banded black and white; abdomen grey-white irrorated with black-brown, the basal half of dorsum suffused with black-brown, the genital tufts of male ochreous white, the ventral surface white. Fore wing grey-white thickly irrorated with brown; subbasal line rather diffused, blackish, from costa to submedian fold where there is a slight dark streak beyond it; antemedial line double, fuscous brown filled in with grey-white, oblique sinuous; reniform fuscous brown with slight white mark in centre, diffused on outer side and with oblique dark bar above it from costa, an oblique, rather triangular white spot defined by blackish below end of cell with slight waved line from it to inner margin; postmedial line black-brown, forming a small spot at costa, strongly bent outwards below costa, then double, filled in with whitish, oblique to above vein 5 where it is angled outwards, then inwardly oblique, dentate and angled inwards at vein 1; subterminal line diffused, whitish defined on outer side by fuscous, dentate, obliquely incurved from costa to below vein 6; a series of blackish striæ before termen faintly defined on outer side by whitish; cilia with a blackish line through them. Hind wing black-brown, the hair on inner margin pale grey-blue; a pale grey-blue curved postmedial band, white at

costa where it narrows; the termen with some white irrorated with fuscous and black striæ in the interspaces from apex to vein 2; cilia pure white. Underside of fore wing black-brown, the base and costal area to middle bluish white, an oblique white medial band from the costal area to submedian fold, a curved white post-medial band, the termen white irrorated with brown, expanding on apical area, a fine waved dark terminal line, cilia white with a series of dark points; hind wing bluish white, a black discoidal lunule, a curved black medial band from just below costa, towards

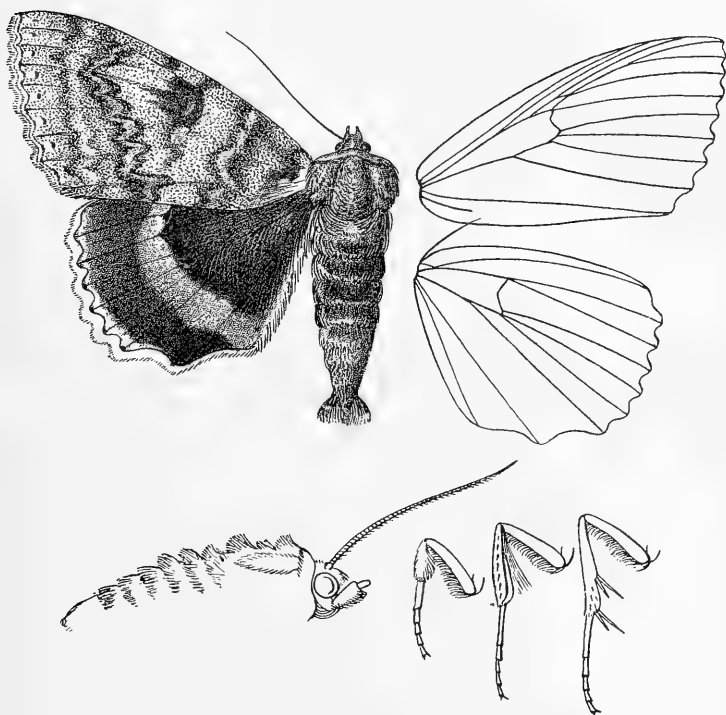


Fig. 5.—*Catocala fraxini*, ♂. ♀.

which it narrows to just above inner margin, a curved black-brown band on terminal area leaving the termen white irrorated with brown from apex to vein 2 and a series of black striæ on termen.

Ab. 1. *mærens*. Fore wing suffused with fuscous.

Ab. 2. *gaulens*. Much paler; fore wing grey-white.—W. Turkestan.

Ab. 3. *maculata*. Hind wing with white mark at lower angle of cell.

Ab. 4. *angustata*. Hind wing with the postmedial band much narrower.

Hab. BRITAIN, Leech Coll.; FRANCE; GERMANY, Zeller, Frey and Mutzell Colls., Bohemia, Leech Coll.; AUSTRIA; HUNGARY, D'Emmich Coll.; SWITZERLAND; N. ITALY; GREECE, Merlin Coll.; SCANDINAVIA; RUSSIA; RUMELIA; ARMENIA; W. TURKESTAN, Tatabagatai Mts., Ala Tau; W. SIBERIA, Altai; E. SIBERIA, Amur, Ussuri; JAPAN. *Exp.* 90–106 millim.

Larva. Meyr. Brit. Lep. p. 162; Barrett, Lep. Brit. vi. p. 249, pl. 252, f. 3; Hfnn. Raup. p. 148, pl. 37, f. 4.

Brownish grey irrorated with black, the 8th and 11th somites with pointed prominences. Food-plants, Ash and Poplar. 6–7.

7180. *Catocala cara*. (Plate CXCv. fig. 8.)

Catocala cara, Guen. Noct. iii. p. 87 (1852); Streck. Lep. Rhop. & Het. p. 98, pl. xi. f. 14; Smith, Cat. Noct. N. Am. p. 344.

Catocala carissima, Hulst, Bull. Brooklyn Ent. Soc. ii. p. 97 (1880).

Catocala sylvia, H. Edw. Bull. Brooklyn Ent. Soc. iii. p. 57 (1880).

Head and thorax bright red-brown, with a deep red-brown band on prothorax edged behind with ochreous; palpi, pectus and legs paler and mixed with grey, the tarsi brown ringed with whitish; abdomen red-brown, the anal tuft and ventral surface whitish tinged with brown. Fore wing bright red-brown irrorated with a few olive-grey scales; subbasal line black, excurved below costa and ending at submedian fold; antemedial line black, oblique and sinuous to median nervure, incurved at vein 1 and excurved above inner margin; reniform very faintly defined by grey and with a slight grey spot in centre, its outer edge somewhat dentate; a rather quadrate greyish spot defined by black below end of cell, connected by a sinus with the postmedial line, which is black, slightly bent outwards below costa, then oblique and slightly sinuous, acutely angled outwards above and below vein 5, then incurved, waved, defined on outer side by grey scales, at vein 2 forming the sinus below end of cell, angled outwards and bidentate at submedian fold; traces of a waved greyish subterminal line defined on outer side by brown, oblique from costa to below vein 7; the veins of terminal area with slight blackish streaks; a series of whitish points in the interspaces just before termen. Hind wing bright crimson-pink; some brown on basal inner area and the hair on inner margin brown; an obliquely curved black medial band, narrowing to inner margin, its outer edge slightly angled outwards at vein 5; the terminal area black, very broad at costa and narrowing to tornus; the termen creamy white towards apex, then with a series of small spots to vein 2, some pale red on the outer edge of the black area; cilia creamy white with a few brown scales especially towards tornus. Underside of fore wing white, an oblique brown antemedial shade from below costa to inner margin, an oblique black-brown medial band, the terminal area broadly fuscous brown, the termen suffused with grey; hind wing as above but the costal area

whitish to beyond middle, the medial band with sinuous inner edge and not reaching inner margin, the termen suffused with grey except towards tornus.

Ab. 1. *carissima*. Fore wing more strongly irrorated with olive-grey scales forming a large patch at apex.

Ab. 2. *sylvia*. Fore wing rather more prominently variegated with olive-grey.

Hab. CANADA; U.S.A., Eastern and Central States, New York, Zeller and Grote Colls. (*Mathew*), 3 ♂, 4 ♀, Ohio, Columbus, 1 ♂, Georgia, 1 ♂, 1 ♀, Florida, Texas. *Exp.* 76-90 millim.

Larva. French, Papilio, ii. p. 167; Koebele, Bull. Brooklyn Ent. Soc. iv. p. 22.

Blackish striped with two shades of brown, the dorsal area paler; two subdorsal black lines and a lateral line; 8th somite with a pale orange protuberance spotted with black; head brown mottled with blackish.

The young larva is whitish green, after the 2nd moult almost black. Food-plants, Willow and Poplar.

7181. *Catocala conjuncta*.

Noctua conjuncta, Esp. Schmett. iv. pl. 99 b. ff. 3, 4 (1786); Godt. Lép.

Fr. v. p. 74, pl. 47. f. 1; Staud. Cat. Lep. pal. p. 248.

Noctua conjuga, Hübn. Eur. Schmett., Noct. f. 335 (1802).

Catocala digressa, Th.-Mieg, Le Natural. (2) iii. p. 181 (1889).

Head and thorax red-brown mixed with some ochreous and white scales, the prothorax with narrow blackish band, the patagia with black scales near edges; the tarsi and spurs banded blackish and white; abdomen ochreous brown, the anal tuft fuscous, whitish at tip, the ventral surface whitish mixed with ochreous brown. Fore wing red-brown mixed with whitish and fuscous; subbasal line black, sinuous, from costa to submedian fold; antemedial line black, sinuous, a broad whitish band irrorated with brown beyond it; reniform defined by black at sides and with traces of a whitish annulus, a dark patch above it on costa; a rounded whitish spot irrorated with brown and defined by black below end of cell; some whitish beyond the cell; postmedial line black slightly defined on outer side by white, bent outwards below costa, then obliquely downcurved, angled outwards above and below vein 5, then incurved, excurved at submedian fold and angled inwards at vein 1; subterminal line rather diffused, whitish defined on outer side by slight dentate dark marks, oblique and incurved to below vein 7, then dentate; a waved black line before termen defined on outer side by whitish points; cilia fuscous at base, chequered brown and whitish at tips. Hind wing crimson, the hair on inner margin brown; a narrow obliquely curved medial black band from costa to vein 1; terminal area black narrowing to tornus, its inner edge incurved between veins 4 and 2; the termen slightly white tinged with crimson and the cilia white towards apex, then series of white points on termen and at tips of cilia to vein 2. Underside of fore

wing black-brown, an oblique diffused white medial wedge-shaped patch from costa to vein 2, a narrow white postmedial band, oblique to vein 4 and obsolescent towards inner margin, some white at apex and the cilia white at base; hind wing with the basal costal area brown, the medial band broader, its inner edge indented below vein 2, the postmedial area narrow, white to vein 5.

Ab. 1. *digressa*. Hind wing paler.

Hab. S. FRANCE, Pyrenees, Leech Coll.; SPAIN, Andalusia, Mutzell Coll.; ITALY, Tuscany (*Passerini*); ALGERIA; DALMATIA, Leech Coll.; GREECE, Olympus, Merlin Coll.; BALKAN STATES; ASIA MINOR, Lydia, Taurus; SYRIA. *Exp.* 60–64 millim.

Larva. Kirby, Butt. & Moths Eur. p. 276; Hffm. Raup. p. 149.

Grey variegated with greenish; dorsal line double, dark; 8th somite with a yellowish prominence tinged with fuscous at sides. Food-plant, Oak.

7182. *Catocala concumbens*. (Plate CXCv. fig. 9.)

Catocala concumbens, Wlk. xiii. 1198 (1857); Streck. Lep. Rhop. & Het. p. 39, pl. v. f. 12; Smith, Cat. Noct. N. Am. p. 344.

Catocala diana, H. Edw. Bull. Brooklyn, Ent. Soc. iii. p. 57 (1880).

Catocala hillii, Grote, Papilio, iii. p. 43 (1883).

Head and thorax grey mixed with some red-brown and blackish, the tegulæ rufous with some brown at base; frons with black lateral bars; fore tibiæ with black spots at base and extremity, the tarsi with blackish bands; abdomen grey tinged with reddish ochreous, the anal tuft and ventral surface whitish. Fore wing grey suffused with olive-brown and irrorated with blackish, the costal area whitish to postmedial line; subbasal line black, excurved below costa and ending at submedian fold; antemedial line black, bent outwards below costa, indistinct below submedian fold and incurved at vein 1; an indistinct minutely waved medial line; reniform very indistinctly defined by brown, its outer edge somewhat dentate; an obliquely curved spot slightly defined by black below end of cell, connected with the postmedial line, which is fine, black slightly defined on outer side by white, somewhat angled inwards below costa, then oblique and slightly sinuous, acutely angled outwards above and below vein 5, then oblique, dentate, at vein 2 forming the sinus below end of cell and incurved at vein 1; a double waved brownish subterminal line filled in with grey, somewhat oblique from costa to below vein 7; a series of black points before termen with slight whitish points beyond them. Hind wing bright crimson-pink; an obliquely curved medial black band from costa to vein 1, its outer edge slightly angled outwards at vein 5; the terminal area black, narrowing to tornus; the termen and cilia white, the latter slightly intersected with brown between veins 6 and 2. Underside of fore wing white, a broad oblique black-brown shade from costa before middle to the obliquely curved black medial band on inner area, a curved blackish subterminal band from just

below costa, the termen grey-white; hind wing as above but the basal costal area white, the postmedial area white to vein 3 and with some white at submedian fold, the medial black band narrower, more irregular and oblique to vein 4, the termen grey-white.

Ab. 1. *diana*. Abdomen partly pink.

Ab. 2. *hilli*. Hind wing with the pink replaced by yellow.

Hab. CANADA, Ontario, Orillia (*Bush*), 1 ♀ type, Manitoba, Cartwright (*Heath*), 1 ♂; U.S.A., Northern, Eastern, and Middle States, Maine (*Grote*), 2 ♂, 1 ♀, New York, Zeller Coll. (*Grote*), 2 ♂, 2 ♀, Wisconsin, Milwaukee Co., 1 ♂. *Exp.* 70–80 millim.

Larva. Saunders, Proc. Ent. Soc. Phil. ii. p. 29.

Dirty brown with a pale dorsal stripe; 8th somite with a small protuberance; 10th somite with a lunulate mark; head dark grey mixed with red. Food-plants, Willow and Poplar.

7183. *Catocala optata*.

Catocala optata, Godart, Lép. Fr. v. p. 63, pl. 47. f. 3 (1824); Mill. Icones, i. p. 270, pl. 3. ff. 2–5; Staud. Cat. Lep. pal. p. 248.

Noctua optabilis, Hübn. Eur. Schmett., Noct. ff. 734–6 (1827).

Catocala amanda, Boisd. Gen. & Ind. Meth. p. 167 (1840).

Catocala selecta, Boisd. Gen. & Ind. Meth. p. 167 (1840).

Head and thorax grey-white mixed with brown; palpi with black bands towards extremity of 2nd joint and on 3rd joint; frons with lateral black bars; a slight V-shaped black mark between antennæ; tegulæ with slight dark line near base and blackish band near tips; prothorax with narrow dark brown band, the patagia with black streaks near edges; abdomen pale brown, the ventral surface white. Fore wing grey suffused with red-brown; subbasal line black, excurved below costa and ending at submedian fold; a diffused black-brown fascia below the cell to the antemedial line, which is black slightly defined on inner side by white, slightly angled outwards below costa, oblique and slightly sinuous to submedian fold, angled inwards at vein 1, excurved and obsolescent above inner margin; reniform with whitish annulus incompletely defined by black, its outer edge somewhat dentate, its centre slightly defined by brown, an oblique brownish striga above it from costa and black streaks beyond it on base of veins 4, 3; a spot defined by black below end of cell connected by a sinus with the postmedial line at vein 2; postmedial line black slightly defined on outer side by whitish, bent outwards below costa, then oblique and slightly sinuous, very acutely angled outwards above and below vein 5, then strongly dentate, angled outwards at submedian fold and inwards at vein 1; subterminal line slight, white, dentate, oblique from costa to below vein 6; the veins of terminal area with black streaks; a series of minute black points before termen with slight white points beyond them. Hind wing crimson-pink; an obliquely curved medial black band from costa to submedian fold, its outer edge slightly angled outwards at vein 5; terminal area black, narrowing to tornus, its inner edge slightly incurved at vein 2; the termen

white towards apex and with small white spots between veins 6 and 2, with a slight pink tinge between it and the black area; cilia white slightly chequered with brown between veins 6 and 2. Underside of fore wing white, an oblique brown antemedial shade from below costa to vein 1, an obliquely curved medial black band, a curved blackish subterminal band, the area beyond it grey-white, hind wing white, the inner half suffused with pink, the medial band with sinuous edges, the termen with a waved dark line.

Ab. 1. *intermedia*, Bang-Haas ined. Fore wing with the post-medial line obsolescent below vein 4.—Algeria.

Ab. 2. *amanda*. Darker.

Ab. 3. *selecta*. Abdomen crimson.

Hab. S. FRANCE, Zeller, Frey, and Leech Colls.; Pyrenees, Leech Coll.; SPAIN, Bilboa, Andalusia, Mutzell Coll.; ALGERIA, Batna, 1 ♂. *Exp.* 60–64 millim.

Larva. Kirby, Butt. & Moths Eur. p. 276; Hffm. Raup. p. 149.

Ochreous grey or brownish, the 8th somite dorsally bright yellow edged with reddish, the prominence white; the 11th somite with an oblique horseshoe-shaped prominence extending to the subdorsal lines; warts distinct, yellowish; lines slight, the dorsal line double, the subdorsal grey, waved, the lateral line grey finely edged with brown; stigmata white edged with black; ventral surface white, pinkish at middle with black patches between the prolegs; head bluish with a yellow patch streaked with black. Food-plants: *Salix caprea* and *viminalis*. 7.

7184. *Catocala sultana*. (Plate CXCV. fig. 10.)

Catocala sultana, Bang-Haas, Iris, xxiv. p. 42, pl. iv. f. 2 (1910).

Head and thorax grey suffused with brown and irrorated with blackish; tegulæ with pale line defined on each side by blackish near base; antennæ black with a slight angled black line between their bases; palpi with blackish band near extremity of 2nd joint; frons black at sides; abdomen grey-brown dorsally tinged with reddish. Fore wing grey-brown slightly tinged with rufous and in parts with fuscous and irrorated with black; a diffused black streak below the cell to the antemedial line; subbasal line slight, black, waved, from costa to vein 1; antemedial line black, indistinctly double except towards costa, oblique, sinuous; reniform with pale annulus slightly defined by blackish, its centre defined by blackish, an oblique black striga above it from costa; an oblique spot defined by black below end of cell connected by a sinus on vein 2 with the postmedial line, which is black, bent outwards below costa, very acutely angled outwards above and below vein 5, dentate below veins 4 and 3, angled outwards at submedian fold and inwards on vein 1; subterminal line faint, pale, strongly dentate, oblique from costa to below vein 7; the veins of terminal area streaked with blackish. Hind wing bright crimson; an obliquely curved black medial band from costa to vein 1; the terminal area black, broad

at costa and narrowing to tornus, its inner edge evenly curved; cilia white. Underside of fore wing white, an oblique diffused antemedial blackish band from below costa to the obliquely curved medial black band at submedian fold, a curved blackish subterminal band, the termen grey; hind wing with the costal area whitish to beyond middle, the termen with some whitish irroration except towards tornus.

Hab. TUNIS, Ain Draham, 1 ♂, 1 ♀. *Exp.* 72 millim.

7185. *Catocala leechi*, n. sp. (Plate CXCv. fig. 11.)

♀. Head and thorax grey-white mixed with some black-brown especially on the tegulæ; palpi with the 1st joint rufous, the 2nd joint towards extremity and the 3rd joint irrorated with black; frons black below; antennæ blackish except at base; vertex of head rufous; tegulæ with two slight blackish medial lines, the prothorax with narrow blackish band, the patagia with black lines near edges; fore and mid tibiæ near extremities and the tarsi banded with blackish; abdomen ochreous white, brownish towards extremity, the ventral surface white. Fore wing pale grey slightly tinged with brown and irrorated with blackish, the inner and terminal areas suffused with fuscous brown; subbasal line black, angled outwards below costa and ending at submedian fold; a diffused black fascia below the cell to the antemedial line, which is indistinctly double, black filled in with whitish, with oblique black bar from costa, then oblique and slightly sinuous to submedian fold and strongly angled inwards at vein 1; reniform with faint whitish annulus, its centre slightly defined by brown, an oblique blackish bar above it from costa; a small spot faintly defined by brown below end of cell, connected by a sinus with the postmedial line at vein 2; postmedial line black slightly defined on outer side by whitish, bent outwards below costa, then oblique and slightly sinuous, very acutely angled outwards above and below vein 5, then strongly dentate, bidentate at submedian fold, then with oblique black streak on it and strongly angled inwards on vein 1, some black-brown beyond it on inner area before the faint dentate whitish subterminal line which is oblique from costa to below vein 7; the veins and interspaces of terminal area with fine black streaks. Hind wing crimson pink; an obliquely curved medial black band from costa to submedian fold, its outer edge slightly angled outwards at vein 5; terminal area black, narrowing to tornus, its inner edge slightly incurved at vein 2; the termen and cilia white with a pinkish tinge at outer edge of the black area, slightly intersected with brown between veins 6 and 2. Underside of fore wing white; an oblique fuscous brown shade from costa before middle to vein 1; an obliquely curved medial blackish band, the terminal area blackish with some grey-white on termen; hind wing with the basal costal area white and the postmedial area white to vein 4.

Hab. KASHMIR, Goorais Valley (*Leech*), 3 ♀ type. *Exp.* 74 millim.

7186. *Catocala pacta*.

Noctua pacta, Linn. Syst. Nat. ed. x. p. 512 (1858); Hübn. Eur. Schmett., Noct. f. 332; Frr. Neue Beitr. pls. 496, 503; Herr.-Schäff. Schmett. Eur., Noct. ff. 232-3; Staud. Cat. Lep. pal. p. 248.

Noctua suecica, Esp. Schmett. iv. pl. 99. ff. 1, 2 (1787).

Catocala discolor, Schultz, Ent. Zeit. xxii. p. 169 (1909).

Head and tegulæ grey-white mixed with some brown; palpi white with some blackish at extremity of 2nd joint and on 3rd joint; frons with lateral black bars, the vertex of head with V-shaped black mark; antennæ with the shaft black above on basal half; tegulæ with black lines at middle and near tips; thorax rufous mixed with some white, the prothorax with white line, the patagia with some white and black scales on upper edge; pectus and legs white, the fore tibiæ at extremity and the tarsi banded with black; abdomen bright crimson-pink, the base, extremity and ventral surface white. Fore wing pale blue-grey slightly irrorated with red-brown, the costal area whitish; sub-basal line black, angled outwards below costa and ending at sub-median fold; antemedial line indistinctly double, the outer line black, the inner faint, red-brown, slightly angled outwards below costa and incurved at vein 1; reniform small, tinged with rufous, defined by red-brown and with red-brown lunule in centre; a spot defined by brown below end of cell, connected by a streak with the postmedial line, which is red-brown, bent outwards below costa, then oblique and slightly sinuous, acutely angled outwards above and below vein 5, then oblique, dentate and incurved at vein 1; traces of a waved brown subterminal line, oblique from costa to below vein 6; a series of black points before termen with white points beyond them; cilia brownish. Hind wing bright crimson-pink; a curved black medial band from costa to sub-median fold; the terminal area blackish, narrowing to tornus; the termen and cilia white with some pink scales between it and the black area, slightly intersected by brown at veins 6 to 2. Underside of fore wing white, an oblique black-brown shade from below costa before middle to the medial blackish band at inner area, a curved blackish subterminal band, the terminal area grey-white; hind wing as above but the costal and terminal areas white, the latter irrorated with brown, the medial black band not quite reaching costa and the subterminal band ending at vein 1.

Ab. 1. *discolor*. Hind wing yellowish red.

Hab. GERMANY, Prussia, Frey Coll., Esthonia, Frey Coll.; HUNGARY, D'Emmich Coll.; SWEDEN; FINLAND, Mutzell Coll.; RUSSIA, Livonia, Zeller Coll., St. Petersburg, Zeller Coll., Urals; W. TURKESTAN, Issyk-Kul; W. SIBERIA, Altai; E. TURKESTAN, Ili; MONGOLIA, Changai Mts.; E. SIBERIA, Amurland. *Exp.* 46-60 millim.

Larva. Kirby, Butt. & Moths Eur. p. 276; Hfsm, Raup. p. 149, pl. 37. f. 10. Reddish grey marbled with blackish, the dorsum with K-shaped

marks; warts yellowish; 8th somite with a blackish protuberance, the 11th somite with a pair of small pointed prominences. Food-plant, Willow.

7187. *Catocala electa*.

Noctua pacta, Schöff. Wien. Verz. p. 90 (1776); Esp. Schmett. iv. pl. 98 (nec Linn.).

Noctua electa, Borkh. Eur. Schmett. iv. p. 26 (1792); Hüb. Eur. Schmett., Noct. f. 331; Godt. Léop. Fr. v. p. 60, pl. 46. f. 1; Frr. Neue Beitr. pl. 407; Mill. Ann. Soc. Ent. Fr. (3) iii. pl. 11. f. 1 (1855); Barrett, Lep. Brit. vi. p. 256, pl. 253. f. 1; Staud. Cat. Lep. pul. p. 247.

Catocala zalmunna, Butl. Cist. Ent. ii. p. 241 (1877); id. Ill. Het. B.M. iii. p. 25, pl. 47. f. 3.

Catocala excellens, Schultz, Ent. Zeit. Guben. xx. p. 86 (1906).

Catocala suffusa, Gillmer, Intern. Ent. Zeit. ii. p. 282 (1909).

Catocala subtristis, Schultz, Ent. Zeit. xxii. p. 168 (1909).

Head and thorax grey mixed with brown; palpi with the 2nd joint except at tips and the 3rd joint blackish; frons with lateral black bars; tegulae with two black medial lines and white tips; prothorax with narrow blackish band, the patagia with blackish streak near upper edge; fore tibiae with black spot at extremity, the tarsi black ringed with white; abdomen grey suffused with ochreous brown and with some fuscous at base of anal tuft, the ventral surface white. Fore wing grey tinged with brown and slightly irrorated with fuscous; subbasal line black, excurved below costa and ending at submedian fold; antemedial line black defined on inner side by white, oblique and sinuous to median nervure, then obsolescent, and incurved at vein 1; reniform defined on inner side by black, its outer side whitish and dentate, its centre defined by brown, some brown suffusion beyond it and an oblique brown bar above it from costa; a spot defined by blackish below end of cell, connected by a sinus with the postmedial line at vein 2; postmedial line black slightly defined on outer side by whitish, bent outwards below costa, then oblique and slightly sinuous, very acutely angled outwards above and below vein 5, then incurved, dentate, and bidentate at submedian fold and angled inwards at vein 1; subterminal line indistinct and diffused, grey defined on each side by pale fuscous brown, obliquely incurved from costa to below vein 7, dentate above and below vein 5 and at submedian fold; a faint oblique dark shade from termen below apex; a series of black points before termen defined on outer side by white points. Hind wing crimson-pink; a black medial band, strongly excurved beyond lower angle of cell and ending at submedian fold; terminal area black, narrowing to tornus, its inner edge slightly incurved at veins 2 and 1; the termen white towards apex and with slight white spots between veins 6 and 2; cilia white, slightly chequered with brown between veins 6 and 2. Underside of fore wing white, an oblique fuscous brown shade from costa before middle to the

obliquely curved medial black band at submedian fold, a curved blackish subterminal band with the area beyond it grey; hind wing as above but the basal costal area white, the postmedial area white to vein 4, then with white streaks on the veins, the termen with more white and a waved brown terminal line.

Ab. 1. *zalmunna*. Fore wing somewhat greyer and less tinged with brown.—Japan, W. China.

Ab. 2. *suffusa*. Fore wing dark grey suffused in parts with black.

Ab. 3. *excellens*. Hind wing suffused with blackish.

Ab. 4. Hind wing yellow.

Hab. BRITAIN (twice); FRANCE; GERMANY, Zeller and Mutzell Colls., Glogau, Zeller Coll.; AUSTRIA; HUNGARY, D'Emmich Coll.; SWITZERLAND, Frey Coll.; SPAIN, Catalonia, Ribao; N. ITALY; ? S. SWEDEN; S. RUSSIA; ARMENIA; E. SIBERIA, Amurland, Ussuri; JAPAN, Yezo (*Pryer*), 1 ♂, 1 ♀, Hakodaté (*Whiteley*, *Leech*), 3 ♂, Tokio (*Fenton*), 1 ♂, 1 ♀, Oiwaké (*Pryer*), 1 ♀, Nikko (*Maries*), 1 ♂, 1 ♀, Sapporo (*Lewis*), 1 ♀, Yokohama (*Jones*), 2 ♀ type *zalmunna*; COREA, Gensan (*Leech*), 2 ♂; W. CHINA, Chang-yang (*Pratt*), 1 ♂, 1 ♀. *Exp.* 70–88 millim.

Larva. Kirby, Butt. & Moths Eur. p. 276; Hffm. Raup. p. 149, pl. 37. f. 11.

Ochreous grey or brownish with dark points; the dorsal warts yellow; 8th somite with a yellow prominence; 11th somite with a pair of yellow-brown prominences; head yellow with brown lines. Food-plants, Willow and Poplar. 5–6.

7188. *Catocala sponsalis*.

Catocala sponsalis, Wlk. xiii. 1213 (1857); Butl. Ill. Het. B.M. vi. p. 39, pl. cxi. f. 1; Hmps. Moths Ind. ii. p. 442.

Head and thorax brown mixed with some whitish, the tegulæ with slight dark medial line and some dark scales near tips, the prothorax with some fuscous; palpi with some fuscous at sides; frons with lateral black bars; tarsi banded fuscous and whitish; abdomen crimson with some brown at base and extremity, the ventral surface whitish tinged with ochreous brown. Fore wing purplish brown mixed with grey; subbasal line black, sinuous, from costa to submedian fold; antemedial line black, slightly angled outwards below costa, strong and oblique to submedian fold, then slight and defined on outer side by whitish, angled inwards at vein 1; reniform faintly defined by brown, somewhat dentate on outer side, an oblique blackish bar above it from costa; a whitish spot defined by black below end of cell, connected with the postmedial line, which is black slightly defined on outer side by whitish, slightly bent outwards below costa, then oblique, acutely angled outwards above and below vein 5, then inwardly oblique, dentate, at vein 2 angled inwards to the spot below end of cell, bidentate at submedian fold and angled inwards at

vein 1; subterminal line indistinct, grey, oblique to below vein 7, then dentate; the veins of terminal area with slight blackish streaks; a slight oblique dark shade from termen below apex; a series of minute blackish points before termen defined on outer side by grey points. Hind wing crimson; a narrow medial black band from costa to submedian fold, excurved beyond lower angle of cell and expanding into spots below costa and at submedian fold; a subterminal black band from costa to vein 2, its inner edge curved, narrowing below vein 5 and expanding into a spot at vein 2, its outer edge waved to termen between veins 6 and 2, the termen pink with some creamy white towards apex, a black spot on termen at vein 1; cilia creamy white, chequered with brown between veins 6 and 2. Underside of fore wing white, an oblique brown shade from below costa before middle to vein 1, a black medial band oblique to vein 5, then narrowing, terminal area fuscous with curved inner edge and some greyish on termen; hind wing with the basal costal area white, the postmedial area white to vein 3 and with some white at submedian fold, the subterminal band narrow, the termen brownish white.

Hab. NEPAL (*Hardwicke*), 1 ♂, 1 ♀ type. *Exp.*, ♂ 80, ♀ 84 millim.

7189. *Catocala promissa*.

- Noctua promissa*, Esp. Schmett. iv. pl. 96 (1786); Hübn. Eur. Schmett., Noct. ff. 334, 657-8; Dup. Léop. Fr., Suppl. iii. p. 540, pl. 46. f. 1; Frr. Neue Beitr. pl. 633; Staud. Cat. Lep. pal. p. 248.
Noctua mnesta, Hübn. Eur. Schmett., Noct. f. 569 (1818).
Noctua sponsa, Godt. Léop. Fr. v. p. 68, pl. 48. f. 1 (nec Linn.).
Catocala obsoleta, Schultz, Ent. Zeit. Guben. xx. p. 95 (1906).
Catocala hilaris, Oberth. Bull. Soc. Ent. Fr. 1907, p. 345.
Catocala ochracea, Oberth. Bull. Soc. Ent. Fr. 1907, p. 346.

Head and thorax brown mixed with white and black; palpi white, the 2nd joint towards extremity and the 3rd joint blackish; frons with lateral black bars; tegulae with medial black line and black tips, the patagia edged with black; pectus and legs white mixed with brown, the tibiae banded with black, the tarsi black ringed with white; abdomen grey-brown, the anal tuft with fuscous patch, the ventral surface brownish white. Fore wing grey-white suffused with reddish brown and thickly irrorated with black; subbasal line black, defined on each side by white at costa, sinuous, from costa to submedian fold; ante-medial line rather diffused, double, black filled in with whitish and defined on each side by white at costa, the outer line expanding into patches at costa and median nervure, oblique, sinuous; reniform with whitish centre defined by brown and with black spots above and below, its annulus white defined by blackish, rather dentate on outer side, an oblique sinuous blackish striga above it from costa; an irregular whitish spot defined by black below end of cell; postmedial line black, defined

on outer side by white at costa and towards inner margin, bent outwards below costa, then oblique and sinuous, angled outwards above and below vein 5, then inwardly oblique, dentate, angled inwards at vein 1; subterminal line white defined on each side by black, dentate, somewhat oblique from costa to below vein 6; the veins of terminal area with slight blackish streaks; a series of black striæ before termen defined on outer side by whitish; cilia chequered whitish and brown. Hind wing crimson, the hair on inner margin brown; a narrow oblique sinuous medial black band from costa to vein 1; the terminal area black, narrowing to tornus, its inner edge incurved at veins 2 and 1; the termen pale crimson at apex, then with series of small spots to below vein 2; cilia chequered brown and white. Underside of fore wing black-brown, an oblique wedge-shaped medial white patch from below costa to vein 2, a narrow white postmedial band, obliquely curved to vein 4 and obsolescent towards inner margin, some whitish at apex, a series of black points before termen, cilia chequered brown and white; hind wing with the basal costal area pale brownish, a black discoidal lunule, its extremities connected with the medial band and with some whitish beyond its upper part, the narrow postmedial area with some whitish from costa to vein 5, the marks on termen white.

Ab. 1. *obsoleta*. Hind wing suffused with black.

Ab. 2. *ochracea*. Hind wing ochreous yellow.

Ab. 3. *hilaris*. Fore wing with the white and dark markings much more contrasted, the basal and terminal areas suffused with black.

Hab. BRITAIN, Leech Coll.; FRANCE; GERMANY, Zeller, Frey, and Mutzell Colls., Silesia, Frey Coll.; AUSTRIA; HUNGARY, D'Emmich Coll.; SPAIN, Castile; ITALY; ALGERIA; SCANDINAVIA; RUSSIA, Livonia; ARMENIA; ? ASIA MINOR, Bithynia. *Exp.* 50-68 millim.

Larva. Meyr. Brit. Lep. p. 163; Barrett, Lep. Brit. vi. p. 265, pl. 255. f. 1; Hffm. Raup. p. 148, pl. 37. f. 9.

Pale greenish grey with darker freckles; the 4th, 8th, and 9th somites with dorsal ochraceous-tinged blotches; 8th somite with a dorsal prominence, the 11th with a slight ridge. Food-plant, Oak. 5-6.

7190. *Catocala electra*. (Plate CXCV. fig. 12.)

Catocala electra, Bang-Haas, Iris, xxiv. p. 41, pl. iv. f. 1 (1910).

Head and thorax grey-white irrorated with black; the tegulæ and prothorax faintly tinged with red-brown, the former with blackish band near upper edge; antennæ black with slight angled line between their bases; palpi white, the 2nd and 3rd joints with blackish bands; frons black at sides; tibiæ and tarsi banded with black; abdomen grey, dorsally suffused with reddish brown. Fore wing grey-white tinged in parts with reddish

brown and irrorated with black; subbasal line black, angled outwards below costa and ending at submedian fold; antemedial line whitish defined on each side by blackish suffusion, waved, oblique towards costa, a black patch beyond it on costa and dentate mark at submedian fold; reniform with pale rufous centre and white annulus incompletely defined by black, its outer edge waved, a blackish bar above it from costa; an oblique spot faintly defined by blackish below end of cell connected on vein 2 with the postmedial line, which is black defined on each side by whitish, forming a small spot on costa, bent outwards below costa, then oblique and sinuous, acutely angled outwards above and below vein 5, then dentate and angled inwards at vein 2; subterminal line whitish defined on each side by brown, dentate, oblique from costa to discal fold; a series of black striae defined on outer side by white before termen; cilia with a dark line through them. Hind wing bright crimson; a narrow oblique black medial band from costa to submedian fold, slightly incurved beyond lower angle of cell and curving inwards below vein 2; the terminal area black, broadly at costa and narrowing to tornus, its inner edge incurved below costa and at middle and excurved at submedian interspace; the termen slightly tinged with red; cilia white intersected with black at the veins. Underside of fore wing black, some whitish at base, an oblique whitish medial band from costa to vein 2, a curved postmedial band, the termen suffused with grey-white; hind wing with black discoidal lunule, some white beyond it and beyond the medial band from costa to discal fold.

Hab. TUNIS, Ain Draham, 1 ♂, 1 ♀. *Exp.* 80 millim.

7191. *Catocala juncta*. (Plate CXCVI. fig. 1.)

Catocala juncta, Staud. Stett. Ent. Zeit. 1889, p. 59; id. Cat. Lep. pal. p. 248.

Head and thorax ochreous tinged with red-brown and mixed with fuscous; palpi whitish, the 2nd joint towards extremity and the 3rd joint with some fuscous; frons with lateral black bars; tegulae with blackish lines near base, at middle and at tips; prothorax with a blackish line; pectus and legs whitish, the tibiae irrorated with fuscous, the tarsi banded with fuscous; abdomen pale grey-brown, the anal tuft tinged with fuscous at base and whitish at tip, the ventral surface whitish. Fore wing greyish ochreous suffused in parts with red-brown and irrorated with dark brown; subbasal line black, curved, from costa to median nervure; antemedial line double, the inner line very indistinct, the outer black and expanding into a spot at costa, oblique, sinuous; reniform with reddish brown centre and pale annulus slightly defined by brown, its outer edge somewhat dentate, an oblique dark bar above it from costa; a pale spot defined by black, indistinctly except on outer side, below end of cell, connected by

a sinus with the postmedial line at vein 2; postmedial line black defined on outer side by greyish, expanding into a small spot at costa, bent outwards below costa, then obliquely downcurved, acutely angled outwards above vein 5 and less strongly below it, then oblique and dentate to above vein 2 and obsolescent below it; subterminal line grey defined on each side by brownish suffusion, oblique to below vein 6, then dentate; a slight oblique dark shade from termen before apex, and a series of black striæ before termen conjoined by a crenulate blackish terminal line. Hind wing pale scarlet, the hair on inner margin whitish; a narrow obliquely curved black medial band from costa to submedian fold; terminal area black, its inner edge incurved at vein 2, then connected by a bar on termen with a spot at vein 1: the termen with a narrow white patch at apex slightly tinged with red on inner side, then a series of small spots in the interspaces to vein 2; cilia white, tinged with brown towards tornus. Underside of fore wing white, an oblique blackish shade from costa before middle to the obliquely curved postmedial black band at vein 1, the band narrowing at costa, terminal area black leaving the termen grey, broadly at apex; hind wing white, the inner area tinged with scarlet, the medial band broader and with sinuous edges.

Hab. E. TURKESTAN, Ili, Maralbashi, 1 ♂, 1 ♀. *Exp.*, ♂ 60, ♀ 66 millim.

7192. *Catocala timur*. (Plate CXCVI. fig. 6.)

Catocala timur, Bang-Haas, Iris, xx. p. 76 (1907).

Head and thorax brownish white mixed with brown; palpi whitish at base and with some fuscous towards extremity of 2nd joint; frons with lateral black bars; pectus and legs whitish, the tibiæ and tarsi irrorated with fuscous; abdomen pale grey-brown with a faint scarlet tinge at sides towards base, the ventral surface whitish. Fore wing grey tinged with brown and irrorated with dark brown, an oblique whitish shade from costa beyond antemedial line to vein 2; subbasal line slight, dark, sinuous, from costa to submedian fold; antemedial line double, oblique, sinuous; reniform obscurely defined by blackish; its outer edge somewhat dentate, its centre defined by blackish, an oblique blackish striga above it from costa; a whitish spot slightly defined by blackish below end of cell, connected by a sinus with the postmedial line at vein 2; postmedial line blackish, bent outwards below costa, then obliquely downcurved, acutely angled outwards above and below vein 5, then oblique, waved, angled outwards at submedian fold and inwards at vein 1; subterminal line pale defined on outer side by brown, oblique to below vein 7, then waved; a slight oblique blackish shade from termen below apex; a series of black striæ before termen and a waved blackish terminal line. Hind wing rather pale scarlet; a narrow medial black band,

oblique to vein 2, then bent inwards and ending at vein 1, expanding somewhat at costa and middle; terminal area black, broad at costa, narrowing to tornus, its inner edge incurved at veins 2 and 1; the termen reddish at apex, then with reddish points to vein 2; cilia white. Underside of fore wing white, an oblique blackish shade from below costa before middle to vein 1, a medial black band with sinuous edges, the terminal area black narrowing to tornus; hind wing with the basal costal area white, the post-medial area white to discal fold, then with white streaks on the veins.

Hab. W. TURKESTAN, Turcomania, Kushk, 1 ♂, 1 ♀, Tedschen Oasis (*Hauser*), 3 ♂, 2 ♀. *Exp.* 44-48 millim.

7193. *Catocala lupina*.

Catocala lupina, Herr.-Schäff. Eur. Schmett. ii. p. 409, Noct. pp. 234-5 (1845); Staud. Cat. Lep. pal. p. 248.

Head and thorax grey-white mixed with brown; palpi with the 2nd and 3rd joints blackish except at extremities; frons with lateral black bars; tegulae with black-brown patches near tips, the prothorax with black-brown band, the patagia with black streaks near edges; fore tibiae with black spots at extremities, the tarsi black ringed with white; abdomen whitish tinged with yellow-brown. Fore wing grey suffused with reddish brown; subbasal line black, angled outwards below costa and ending at median nervure; a diffused black streak below the cell to the antemedial line, which is double, black filled in with white, the inner line slight, the outer expanding into a spot at costa, excurved and slightly sinuous, incurved at vein 1; reniform narrow, defined by blackish, indistinctly on outer side, its centre defined by brown, an oblique blackish bar above it from costa; a spot defined by black below end of cell connected by a sinus with the postmedial line at vein 2; postmedial line black slightly defined on outer side by whitish and with a rather diffused brown line beyond it, forming a small spot at costa, bent outwards below costa, then obliquely downcurved, acutely angled outwards above and below vein 5, then oblique, dentate, angled outwards at submedian fold and inwards at vein 1; subterminal line slight, whitish, dentate, oblique from costa to below vein 6, closely approximated to the postmedial line; the interspaces of terminal area with fine black streaks intersecting the cilia, which have a fine whitish line at base. Hind wing pale crimson-pink; a narrow black medial band, obliquely curved to submedian fold, then bent inwards and ending at vein 1; the terminal area black, narrowing to tornus, its inner edge incurved at vein 2 and excurved at submedian fold; cilia white, mixed with brown and with a brown line through them except at apex. Underside of fore wing white, an oblique brown antemedial shade from below costa to vein 1, an oblique blackish medial band angled outwards at submedian fold, then narrow, the

terminal area blackish narrowing to tornus and with some greyish at apex, a fine waved dark terminal line and white line at base of cilia; hind wing white, the inner half tinged with pink, the medial band as above, the terminal area suffused with grey towards apex, a fine waved dark terminal line and white line at base of cilia.

Hab. AUSTRIA, Istria, Leech Coll.; RUSSIA, Urals; ARMENIA, Caucasus, Zeller, Frey and Mutzell Colls.; ? ASIA MINOR, Bithynia; KHURDISTAN; W. TURKESTAN, 1 ♀, Tarbagatai Mts., Ala Tau; W. SIBERIA, Altai. *Exp.* 50–58 millim.

Larva. Kirby, Butt. & Moths Eur. p. 276; Hfñ. Raup. p. 149.

Ochreous grey with some dark points and two slight dorsal lines; 8th somite with a dark prominence, the 11th with two small pointed prominences; warts yellowish; head grey with dark lines and two reddish prominences. Food-plant, Willow. 6.

7194. *Catocala desiderata*. (Plate CXCVI. fig. 7.)

Catocala desiderata, Staud. Stett. Ent. Zeit. 1888, p. 59; id. Cat. Lep. pal. p. 248.

Head and thorax white mixed with red-brown; palpi with the 2nd joint blackish towards extremity and some black on 3rd joint; frons with lateral black bars; a V-shaped brown mark between antennæ; tegulæ with two medial blackish lines filled in with white and white tips; prothorax with narrow red-brown band; pectus, legs, and abdomen white, the last dorsally tinged with red-brown. Fore wing grey-white suffused with pale red-brown, the costal area whiter; subbasal line slight, black, excurved below costa and ending at median nervure; a black-brown streak below submedian fold and a streak above it before the antemedial line, which is represented by an oblique sinuous black striga from costa and a slight line faintly defined on inner side by white from cell to inner margin, angled inwards at vein 1; reniform very faintly defined on outer side by a dentate brown line, an oblique brown striga above it from costa; traces of a spot defined by brown below end of cell, connected by a sinus with the postmedial line at vein 2; postmedial line with black striga from costa, then brown and slight, bent outwards below costa, then oblique, very acutely angled outwards above and below vein 5, then waved, strongly excurved at submedian fold below which there is an oblique black streak on it, strongly angled inwards on vein 1, a faint red-brown line beyond it, more prominent at submedian fold; the terminal area with fine black streaks on the veins and faint whitish streaks in the interspaces; cilia with a brownish line through them. Hind wing pale pink; a narrow oblique sinuous black medial band from costa to submedian fold, angled outwards at vein 5; terminal area black, narrowing to tornus, its inner edge incurved at vein 2 and excurved at submedian fold; the termen except towards tornus and cilia white with a faint pinkish tinge on outer edge of the black area. Underside of fore wing white, an oblique brown

antemedial shade from below costa to vein 1, an oblique black medial band, angled outwards at submedian fold, then narrow, a curved fuscous subterminal shade except at costa, the area beyond it grey; hind wing white with a pink tinge above inner margin, the medial band as above but obsolescent towards costa, a narrow sinuous blackish subterminal band obsolete towards costa where it is replaced by dark irroration, the area beyond it white.

Hab. W. TURKESTAN, Ferghana; E. TURKESTAN, Ili, Kungess, 1 ♂, 1 ♀. *Exp.* 58 millim.

*7195. *Catocala optima*. (Plate CXCVI. fig. 2.)

Catocala optima, Staud. Stett. Ent. Zeit. 1888, p. 57; id. Cat. Lep. pal. p. 248.

♂. Head and thorax pale grey mixed with fuscous; palpi white at base; frons with lateral black bars; pectus white; abdomen grey slightly tinged with red-brown, the ventral surface white with faint rufous segmental bands. Fore wing grey mixed with fuscous and faintly tinged with red-brown; subbasal line blackish defined on outer side by pale grey, sinuous, from costa to submedian fold; antemedial line blackish defined on inner side by pale grey, oblique, slightly waved towards costa, and incurved at vein 1; an oblique pale grey shade from middle of costa; reniform defined by blackish and with its centre defined by blackish, rather irregular; an oblique pear-shaped pale grey spot defined by blackish below end of cell connected by a sinus in submedian fold with the postmedial line, which is blackish defined on outer side by pale grey, bent outwards below costa, then obliquely downcurved to below vein 6, then oblique, slightly sinuous to submedian fold, then waved; subterminal line pale grey defined on outer side by blackish, waved, oblique to below vein 6; an oblique blackish shade from apex; a series of black striæ before termen; a fine waved black terminal line; cilia with a waved brown line at middle. Hind wing bright crimson; a narrow black medial band expanding somewhat at middle, oblique to submedian fold, then bent inwards and ending at vein 1; a terminal black band broad at costa and narrowing to tornus, slightly angled inwards at veins 2 and 1 and very narrow in submedian interspace; the apex narrowly white; cilia white chequered with black at base at veins 6 to 2. Underside of fore wing white, an oblique blackish shade from below costa before middle to the oblique curved black medial band at submedian fold, the terminal area black, narrowing to tornus; hind wing as above but with the costal area white to discal fold and vein 2 before and beyond the medial band and veins 4 to 2 slightly streaked with white on postmedial area.

♀. Fore wing with the postmedial line angled outwards below vein 6, then incurved to above vein 2.

Hab. E. TURKESTAN, Kuldja, type † ♂ ♀ in Coll. Püngeler. *Exp.* 52 millim.

7196. *Catocala amabilis*. (Plate CXCVI. fig. 4.)

Catocala amabilis, Bang-Haas, Iris. xx. p. 75 (1907).

♀. Head and thorax brownish white mixed with black; palpi white towards base; frons with lateral black bars; pectus and legs white, the tibiæ and tarsi irrorated with black; abdomen grey-brown slightly mixed with crimson, the ventral surface white slightly irrorated with brown and with some fulvous before anal tuft. Fore wing grey-white thickly irrorated with black; subbasal line slight, black, sinuous, from costa to submedian fold; antemedial line indistinctly double, black filled in with white, oblique and slightly sinuous, incurved at vein 1; reniform obscurely defined by black and with blackish striga in centre, its outer edge somewhat dentate, an oblique dark bar above it from costa, a white patch before it in cell confluent with a white spot defined by black below end of cell and connected by a sinus with the postmedial line, which is black defined on outer side by whitish, bent outwards below costa, then obliquely downcurved, angled outwards above and below vein 5, then inwardly oblique, waved, with black streak on it below submedian fold and angled inwards at vein 1, a reddish brown shade beyond it; subterminal line whitish defined on outer side by fuscous, dentate, oblique to below vein 7, an oblique blackish shade from termen below apex; a series of black strise before termen, a waved terminal line and a line through the cilia. Hind wing bright crimson; a narrow black medial band, oblique to submedian fold, then bent inwards and ending at vein 1; terminal area black, interrupted at submedian fold, its inner edge incurved at vein 2; the termen whitish at apex, then with whitish points to vein 2; cilia white, chequered with fuscous between veins 6 and 2. Underside of fore wing white, an oblique blackish shade from costa before middle to the oblique black medial band at vein 1, a slight crimson tinge above its extremity, the terminal area black narrowing to tornus and with some whitish on termen at apex; hind wing with the basal costal area white, the postmedial area white to vein 5, then with white streaks on the veins.

Hab. W. TURKESTAN, Turcomania, Tedschen Oasis (*Hauser*), 3 ♀; AFGHANISTAN, Kuschik, type † ♀ in Coll. Staudinger. *Exp.* 60 millim.

7197. *Catocala nupta*.

Noctua nupta, Linn. Syst. Nat. ed. xii. p. 841 (1767); Fsp. Schmett. iv. pl. 97. ff. 1, 2; Hübn. Eur. Schmett., Noct. f. 330; Godt. Léop. Fr. v. p. 54, pl. 45. ff. 2, 3; Frr. Neue Beitr. pl. 425; Caland. Tij. v. Ent. 1896, p. 163, pl. 8. f. 1 Hmps. Moths Ind. ii. p. 441; Staud. Cat. Lep. pal. p. 247.

Noctua concubina, Bork. Schmett. Eur. iv. p. 21 (1792); Hübn. Eur. Schmett., Noct. f. 329; Frr. Neue Beitr. pl. 461.

Catocala unicuba, Wlk. xiii. 1210 (1857); Butl. Ill. Het. B.M. vi. p. 39, pl. cx. f. 11.

Catocala obscurata, Oberth. Ét. Ent. v. p. 86 (1880).

Catocala nuptialis, Staud. Cat. Lep. pal. p. 248 (1901).

Catocala flava, Schultz, Ent. Zeit. Guben. xx. p. 86 (1906).

Catocala mutilata, Schultz, Ent. Zeit. Guben. xx. p. 94 (1906).

Catocala fida, Schultz, Ent. Zeit. xxii. p. 169 (1909).

Catocala diluvior, Schultz, Ent. Zeit. xxii. p. 169 (1909).

Head and thorax brown mixed with grey and blackish; palpi whitish towards base; frons with dark lateral bars; tegulae with blackish medial line, the prothorax with blackish bar, the patagia with some black scales near edges; pectus brownish white; legs irrorated with fuscous, the tarsi black ringed with white; abdomen grey-brown with a slight rufous tinge, the ventral surface white. Fore wing grey tinged in parts with reddish brown and irrorated with black-brown; subbasal line double, fuscous filled in with grey, from costa to submedian fold; antemedial line double, brown filled in with grey, oblique, sinuous; reniform with fuscous centre and grey annulus defined by fuscous, an oblique dark bar above it from costa and some pale grey before it in the cell; a spot with rufous centre and greyish annulus defined by fuscous below end of cell; a slight waved dark line from beyond upper angle of cell to inner margin; postmedial line fuscous brown, bent outwards below costa, then oblique, acutely angled outwards above and below vein 5, then incurved, angled outwards above vein 2, bidentate at submedian fold, then angled inwards at vein 1 and defined on outer side by white; subterminal line white defined on outer side by fuscous, dentate, oblique from costa to below vein 6; a series of black points just before termen. Hind wing scarlet, the hair on inner margin brown and some brown hair on inner area; a curved black medial band, its inner edge incurved at submedian fold and bent inwards as a streak near inner margin, its outer edge angled outwards at vein 5; terminal area black, narrowing to tornus, its inner edge incurved at veins 2 and 1 and angled outwards at submedian fold; the termen narrowly white and slightly tinged with red at apex, then with series of slight spots in the interspaces to vein 2; cilia white with some fuscous at extremities of veins 6 to 2 and towards tornus. Underside of fore wing black-brown, some whitish at base, an oblique white medial patch from subcostal nervure to vein 2, a white postmedial band oblique to vein 4 and slightly angled outwards at submedian fold, the termen grey-white towards apex; hind wing as above but the basal costal area to discal fold and the narrow postmedial area to vein 5 white, the medial band obsolescent below submedian fold.

Ab. 1. *unicuba*. Fore wing suffused with fuscous.

Ab. 2. *nuptialis*. Fore wing paler grey.

Ab. 3. *fida*. Fore wing with the terminal area whitish.

Ab. 4. *mutilata*. Hind wing with the medial band shorter.

Ab. 5. *flava*. Hind wing with the costal half orange-yellow.

Ab. 6. Hind wing with the bands pale grey instead of black.

Hab. BRITAIN, Leech Coll.; FRANCE; GERMANY, Zeller, Frey and Mutzell Colls.; AUSTRIA; HUNGARY, D'Emmich Coll.; SWITZERLAND; SPAIN, Bilbao; CORSICA; ITALY; GREECE, Merlin Coll.; TURKEY;

SCANDINAVIA; RUSSIA, Livonia, Zeller Coll.; ? ASIA MINOR, Bithynia; W. TURKESTAN, Issyk-Kul, Ala Tau; W. SIBERIA, Altai; E. TURKESTAN, Ili; E. SIBERIA, Amurland, 2 ♀, Ussuri; JAPAN, Yezo (Pryer), 1 ♂; PUNJAB (Mrs. Manger), 1 ♀, type *unicuba*. *Exp.* 70-94 millim.

Larva. Meyrick, Brit. Lep. p. 162; Barrett, Lep. Brit. vi. p. 254, pl. 253. f. 2; Hfm. Raup. p. 148, pl. 37. f. 6.

Grey irrorated with brown; somite 8 with a dark dorsal blotch, the 8th and 11th somites with dorsal prominences. Food-plants: *Salix*, Poplar, Ash. 5-7.

7198. *Catocala szechuena*, n. sp. (Plate CXCVI. fig. 5.)

♂. Head and thorax red-brown mixed with grey and some fuscous; palpi whitish at base; tegulæ with slight dark lines near base and at middle; pectus and legs brownish white, the latter irrorated with black, the tarsi blackish ringed with white; abdomen pale grey tinged with red-brown, the ventral surface white. Fore wing grey tinged with red-brown and irrorated with black; a slight blackish subbasal line from costa to submedian fold; antemedial line double, the lines rather widely separated, slightly filled in with whitish at inner margin, oblique, sinuous; reniform obscurely defined by blackish, irregular; a very indistinct spot defined on outer side by blackish below end of cell; medial line blackish, excurved round end of cell, then oblique and minutely waved; postmedial line double, brownish, bent outwards below costa, then minutely waved, obliquely incurved to above vein 5, then inwardly oblique; subterminal line greyish defined on outer side by blackish, waved, oblique from costa to below vein 6, and slightly angled outwards in submedian fold; a series of slight blackish striæ before termen; cilia brownish white at tips. Hind wing scarlet, the hair on inner margin pale brownish and some pale brownish hair at base; a narrow black medial band, expanding into a small spot below costa, then excurved and ending at submedian fold; terminal area black, narrowing to tornus, its inner edge angled inwards at veins 2 and 1; the termen with some white at apex, then with series of small white spots to vein 2; cilia white, brown at base towards tornus. Underside of fore wing white, an oblique brown shade from below costa before middle to vein 1, a black medial band, incurved beyond the cell, then obliquely excurved, a curved black terminal band leaving the termen towards apex and the cilia white; hind wing as above, but the basal costal area to median nerve and the postmedial area to vein 3 white.

Hab. W. CHINA, Ta-chien-lu (Pratt), 1 ♂ type. *Exp.* 78 millim.

7199. *Catocala concubia*.

Catocala concubia, Wlk. xiii. 1210 (1857); Butl. Ill. Het. B.M. vi. p. 39, pl. 110. f. 10; Hmps. Moths Ind. ii. p. 442.

Head and thorax grey mixed with fuscous and some brown; palpi white at base; tegulæ with slight black medial line, the

prothorax with slight brown line; pectus and legs white; the latter irrorated with black, the tarsi blackish ringed with white; abdomen pale grey tinged with reddish brown, the ventral surface white. Fore wing grey slightly tinged in parts with brown and irrorated with black; subbasal line blackish defined on outer side by grey, sinuous, from costa to submedian fold; antemedial line double, fuscous filled in with grey and with whitish towards inner margin, oblique, sinuous; reniform defined by blackish and its centre defined by blackish, a blackish bar above it from costa and some blackish suffusion beyond it; an elliptical spot defined by blackish and with blackish centre below end of cell, a waved black line from it to inner margin; postmedial line indistinctly double filled in with grey, bent outwards below costa, then obliquely incurved to above vein 5 where it is angled outwards, then inwardly oblique, dentate, and with white spot at inner margin; subterminal line grey-white defined on outer side by blackish, dentate, obliquely incurved from costa to below vein 7; a series of black striæ before termen; a slight waved black terminal line and brown line near base of cilia. Hind wing scarlet, the hair on inner margin brown, some brownish hair at base and on inner area; an obliquely curved medial black band from costa to vein 1, expanding towards costa and its outer edge excurved at vein 5; terminal area black, narrowing to tornus, its inner edge angled inwards at veins 2 and 1 and excurved at submedian fold; the termen with white patch at apex, then with series of small white spots in the interspaces to vein 2; cilia white with a faint dark line through them except towards apex. Underside of fore wing white, an oblique fuscous brown shade from below costa before middle to vein 1, a black medial band, obliquely excurved below vein 5, a curved black terminal band leaving the termen towards apex and the cilia grey-white; hind wing as above, but the basal costal area to median nervure and the postmedial area to vein 3 white, the medial band narrow.

Hab. KASHMIR, Huttu (*Leech*), 1 ♂, Goorais Valley (*Leech*), 1 ♂; PUNJAB (*Mrs. Manger*), 1 ♂ type, Simla (*Harford*), 1 ♂, Murree (*Harford*), 2 ♂, 2 ♀. *Exp.* 90-96 millim.

7200. *Catocala marmorata*. (Plate CXCVI. fig. 3.)

Catocala marmorata, W. H. Edw. Proc. Ent. Soc. Phil. ii. p. 598 (1864); Streck. Lep. Rhop. & Het. p. 73, pl. ix. f. 6; Smith, Cat. Noct. N. Am. p. 340.

♂. Head and tegulæ dark brown mixed with grey and some rufous; palpi whitish towards base; frons with lateral dark bars; tegulæ with black-brown medial line; thorax rufous mixed with some grey-white, the prothorax with dark brown bar; pectus white tinged with brown; legs dark brown mixed with grey; abdomen pale reddish brown, the ventral surface whitish. Fore wing grey-white mixed with some rufous and irrorated with black-brown, a curved black-brown fascia from middle of costa to termen below

apex, narrowing at costa and towards termen; subbasal line indistinct, brown, curved, from costa to submedian fold; antemedial line double, brown filled in with white, angled outwards below costa, then oblique, sinuous; reniform defined by dark brown, obscured by the dark fascia and hardly traceable, some white before it in cell; traces of a spot defined by brown and with some white on its inner side below end of cell; an oblique slightly waved brown line from vein 5 beyond the cell to inner margin; postmedial line double, brown filled in with white, bent outwards below costa, then oblique, acutely angled outwards above vein 5, then inwardly oblique, dentate, angled outwards above vein 2 and at submedian fold and inwards at vein 1; subterminal line prominent, white defined on each side by brown, dentate, oblique from costa to below vein 6; a series of small blackish spots just before termen; cilia white at tips. Hind wing scarlet, the hair on inner margin fuscous brown, the inner area with some brown hair; a curved black medial band, its inner edge incurved at submedian fold and its outer edge excurved at vein 5; terminal area broadly black, narrowing towards tornus, its inner edge sinuous and incurved at veins 2 and 1; the termen narrowly white tinged with red at apex, then with series of slight spots in the interspaces to vein 2; cilia white with some fuscous at veins 6 to 2 and towards tornus. Underside of fore wing black, some whitish at base, an oblique sinuous white medial bar from below costa to vein 2, an obliquely curved white postmedial band slightly angled outwards in submedian fold, the apex greyish; hind wing as above, but the basal costal area to discal fold and the postmedial area to vein 5 white, a black discoidal lunule conjoined above to the medial band.

Hab. U.S.A., New York, Ohio, Virginia, Montgomery Co., 1 ♂, Kentucky, 1 ♂, Kansas, California. *Exp.* 100 millim.

7201. *Catocala irene*. (Plate CXCVI. fig. 8.)

Catocala irene, Behr, Trans. Am. Ent. Soc. iii. p. 24 (1870); Smith, Cat. Noct. N. Am. p. 343.

Catocala virgilia, H. Edw. Bull. Brooklyn Ent. Soc. iii. p. 56 (1880).

Catocala volumina, H. Edw. Bull. Brooklyn Ent. Soc. iii. p. 56 (1880).

Catocala valeria, H. Edw. Bull. Brooklyn Ent. Soc. iii. p. 56 (1880).

Head and thorax red-brown mixed with grey; palpi white tinged with red-brown towards base, fuscous towards tips; frons with lateral black bars; tegulæ with black medial line, the prothorax with black bar, the patagia with black lines near edges; pectus and legs white tinged with brown, the tarsi blackish ringed with white; abdomen grey-brown tinged with rufous, the anal tuft with some fuscous, the ventral surface white tinged with ochreous brown. Fore wing grey suffused with bright red-brown and irrorated with blackish, the basal area suffused with blackish to vein 1; subbasal line black, sinuous, from costa to submedian fold; antemedial line double, black filled in with rufous, oblique, sinuous, angled inwards at median nervure and vein 1; reniform

obscurely defined by blackish, a whitish patch before it in cell and a diffused black bar above it from costa, the area beyond it suffused with black to the angle of the postmedial line where it is met by an oblique dark shade from termen below apex; a whitish spot tinged with rufous and defined by dark brown below end of cell connected by a sinus with the postmedial line at vein 2; postmedial line black slightly defined on outer side by whitish, bent outwards below costa, then oblique and slightly sinuous, very acutely angled outwards above and below vein 5, then oblique, dentate, strongly incurved at vein 1, a pale rufous patch beyond it between veins 4 and 3; subterminal line whitish defined on outer side by brown, dentate, oblique from costa to below vein 6; a series of blackish striae before termen. Hind wing scarlet, the hair on inner margin brown; an obliquely curved medial black band from costa to vein 1, its outer edge excurved at vein 5; terminal area black, narrowing to tornus, its inner edge angled inwards at veins 2 and 1 and excurved at submedian fold; the termen narrowly white towards apex, its inner edge faintly tinged with red; cilia white with slight fuscous spots at veins 6 to 2, then fuscous at base and wholly fuscous towards tornus. Underside of fore wing black with some brownish white at base, an oblique white medial bar from below costa to vein 2, a white postmedial band, oblique to vein 4, narrowing and tinged with brown towards inner margin, the apical part of termen brownish white; hind wing as above, but the basal costal area ochreous white, the postmedial area white to discal fold.

Ab. 1. *virgilia*. Fore wing mostly suffused with fuscous.

Ab. 2. *volumnia*. Fore wing with diffused whitish streaks; hind wing with the medial band reaching the inner margin.

Ab. 3. *valeria*. Fore wing pale fawn-brown; hind wing with the medial band narrow.—Arizona.

Hab. U.S.A., Colorado, California, Mendocino Co., 3 ♂, Arizona.
Exp. 70–78 millim.

7202. *Catocala parta*. (Plate CXCVI. fig. 10.)

Catocala parta, Guen. Noct. iii. p. 84, pl. 16. f. 1 (1852); Streck. Lep.

Rhop. & Het. p. 38, pl. v. f. 10; Smith, Cat. Noct. N. Am. p. 340.

Catocala perplexa, Streck. Lep. Rhop. & Het. p. 38, pl. v. f. 11 (1874).

Catocala petulans, Hulst, Bull. Brooklyn Ent. Soc. vii. p. 43 (1884).

Head and thorax grey-white mixed with reddish brown; palpi with some fuscous towards tips; frons with lateral fuscous bars; tegulae with black lines near base, at middle and near tips, the prothorax with black line, the patagia edged with black; pectus brownish white; tarsi blackish ringed with white; abdomen pale rufous, the ventral surface white tinged with rufous. Fore wing grey-white slightly tinged with brown and irrorated with fuscous; a blackish streak in submedian fold to the antemedial line, its lower edge giving off a slight fork at middle; a curved subbasal black striga from costa; antemedial line blackish defined on inner

side by white, oblique, dentate; reniform defined by black and with its centre defined by black, its outer edge somewhat dentate, placed on an oblique dark shade from costa to lower angle of cell, some white before it in the cell; a large rather triangular white spot defined by black below end of cell; postmedial line blackish, bent outwards below costa, then oblique, acutely angled outwards above and below vein 5, then inwardly oblique, dentate, strongly incurved at vein 1 and with black streak on it below submedian fold, some white before it beyond the cell and beyond it at middle; subterminal line white defined on outer side by blackish, dentate, oblique from costa to below vein 7; an oblique sinuous black streak from termen below apex; a series of black striæ before termen; a fine waved black terminal line. Hind wing orange-scarlet, the hair on inner margin brownish; a narrow curved black medial band from costa to vein 1, its outer edge slightly angled outwards at vein 5; terminal area black, narrowing to tornus, its inner edge angled inwards at veins 2 and 1; the termen narrowly white tinged with red towards apex, then with series of small spots in the interspaces to vein 2; cilia white, fuscous towards tornus. Underside of fore wing white, an oblique black-brown shade from costa before middle to the obliquely curved medial black band at submedian fold, terminal area black, its inner edge curved and slightly waved, the termen brownish white towards apex; hind wing as above, but the basal costal area ochreous white, the postmedial area white to vein 5, a black striga on upper discocellular.

Ab. 1. *perplexa*. Fore wing paler and slightly more tinged with blue-grey.

Hab. CANADA, Hudson's Bay, Ontario (*Bush*), 1 ♀; U.S.A., Northern and Eastern States, Massachusetts, 1 ♂, New York, 2 ♂, 2 ♀, Colorado. *Exp.* 82-98 millim.

Larva. H. Edw. *Papilio*, iii. p. 24.

Dull fawn colour; dorsal line pale brownish, a subdorsal slightly waved line, and a brown stigmatal line; head with black line behind. Food-plants, Willow and Poplar.

7203. *Catocala californica*. (Plate CXCVI. fig. 9.)

Catocala californica, W. H. Edw. *Proc. Ent. Soc. Phil.* ii. p. 509 (1864); Streck. *Lep. Rhop. & Het.* p. 98, pl. 11. f. 13; Smith, *Cat. Noct. N. Am.* p. 343.

Catocala mariana, H. Edw., Streck. *Lep. Rhop. & Het.* p. 99 (1874); Smith, *Cat. Noct. N. Am.* p. 342.

Catocala cleopatra, Streck. *Lep. Rhop. & Het.* p. 99 (1874).

Catocala perditæ, Streck. *Lep. Rhop. & Het.* p. 100 (1874).

Head and thorax reddish brown mixed with grey; palpi brown towards extremity of 2nd joint; frons with lateral blackish bars; tegulæ with blackish medial line, the prothorax with narrow blackish band; tarsi banded with blackish; abdomen grey-brown with dark lateral lines except at base and extremity. Fore wing

grey tinged with red-brown and irrorated with dark brown; subbasal line slight, dark, excurved below costa and ending at median nervure; antemedial line double, oblique, waved; reniform with its centre and outer edge defined by rather diffused brown, an oblique dark bar above it from costa; a small pale spot obscurely defined by brown below end of cell; a faint curved line beyond the cell from vein 6 to submedian fold; postmedial line blackish, bent outwards below costa, then oblique and slightly sinuous, acutely angled outwards above and below vein 5, then oblique, dentate, strongly angled inwards at vein 1 and with black streak on it below submedian fold; subterminal line whitish defined on outer side by blackish, dentate, oblique from costa to below vein 2; a series of blackish points before termen. Hind wing scarlet, the hair on inner margin pale brown; an obliquely curved medial black band from costa to vein 1, towards which it narrows, its edges slightly sinuous; terminal area black, narrowing to tornus, its inner edge slightly incurved at veins 2 and 1; the termen with some white tinged with red towards apex; cilia white, brown at base towards tornus. Underside of fore wing white, an oblique brown shade from below costa before middle to vein 1, the white medial band slightly tinged with red below the cell, a curved black postmedial band with sinuous edges, narrowing to inner margin, the terminal area black, narrowing to tornus and with some grey irrorated with brown on apical part of termen; hind wing as above, but the medial band broader, with more sinuous edges and ending at submedian fold, the narrow postmedial area white to discal fold.

Ab. 1. *perdita*. Fore wing bluer grey; hind wing with the apex white without any red tinge.

Ab. 2. *cleopatra*. Fore wing rather more evenly suffused with brown.

Hab. U.S.A., California, Grote Coll. (*Walsingham*), 4 ♂, 1 ♀. *Exp.* 70-74 millim.

7204. *Catocala faustina*. (Plate CXCVI, fig. 11.)

Catocala faustina, Streck. Lep. Rhop. & Het. p. 21, pl. iii. f. 8 (1873); Smith, Cat. Noct. N. Am. p. 341.

Catocala zillah, Streck. Lep. Rhop. & Het. p. 129 (1877).

Catocala verecunda, Hulst, Bull. Brooklyn Ent. Soc. vii. p. 45 (1884).

Catocala carlota, Beutenm. Bull. Am. Mus. Nat. Hist. ix. p. 212 (1897).

Catocala cærulea, Beutenm. Bull. Am. Mus. Nat. Hist. xxiii. p. 939 (1907).

Catocala diantha, Beutenm. Bull. Am. Mus. Nat. Hist. xxiii. p. 937 (1907).

Catocala lydia, Beutenm. Bull. Am. Mus. Nat. Hist. xxiii. p. 939 (1907).

Head and thorax grey-white mixed with some reddish brown and fuscous; tegulæ with blackish medial line, the prothorax with slight black line; pectus white; tarsi blackish ringed with white; abdomen pale rufous, the ventral surface white. Fore wing grey-white faintly tinged with brown and irrorated with fuscous;

subbasal line black, sinuous, from costa to submedian fold; antemedial line double, blackish filled in with whitish, oblique, sinuous; reniform defined by blackish and its centre defined by blackish, its outer edge somewhat dentate, an oblique dark bar above it from costa and some whitish before it in cell; a whitish spot defined by blackish below end of cell; postmedial line blackish slightly defined on outer side by whitish, bent outwards below costa, then oblique, angled outwards above vein 5, then inwardly oblique, minutely dentate and strongly angled inwards at vein 1; subterminal line pale grey defined on each side by fuscous, dentate, oblique from costa to below vein 7; a series of black striæ before termen; a fine waved black terminal line; cilia with a dark line through them. Hind wing scarlet, the hair on inner margin pale fuscous; an obliquely curved black medial band from costa to vein 1, its outer edge slightly excurved below costa and at vein 5; terminal area black, narrowing to tornus, its inner edge incurved at veins 2 and 1; the termen narrowly white towards apex, then with series of small white spots in the interspaces to vein 2; cilia white, fuscous towards tornus. Underside of fore wing white, an oblique black-brown shade from costa before middle to the obliquely curved black medial band at submedian fold, terminal area black, its inner edge curved, the termen grey-white towards apex; hind wing as above but the basal costal area white, the postmedial area white to vein 5, then with white streaks on the veins.

Ab. 1. *verecunda*. Fore wing paler grey.

Ab. 2. *cœrulea*. Head, thorax, and fore wing much bluer grey.

Ab. 3. *diantha*. Fore wing more evenly suffused with brown.

Ab. 4. *lydia*. Fore wing suffused with fuscous black, the markings obscured, the pale filling of the antemedial line and the subterminal line bluish white.

Ab. 5. *zillah*. Fore wing irrorated with crimson scales, especially on the lines and the reniform.

Ab. 6. *carlota*. Fore wing nearly uniform whitish grey, the medial area whiter; the lines very prominent and black, the postmedial line with some black suffusion on it below the angle at vein 5 and forming a wide sinus below end of cell; hind wing rosy.

Hab. U.S.A., Washington, Montana, Oregon, Colorado, Glenwood Springs, 2 ♂, Denver (*Oslur*), 2 ♂, 2 ♀, Utah (*Poling*), 1 ♂, Stockton, 1 ♂, Provo City, Vineyard, type † ♂ *lydia* in Am. Mus. Nat. Hist., California, Sierra Nevada, Lake Tahoe, New Mexico, Arizona. *Exp.* 66-72 millim.

7205. *Catocala luciana*. (Plate CXCVI. fig. 12.)

Catocala luciana, Streck. Lep. Rhop. & Het. p. 99 (1874): Smith, Cat. Noct. N. Am. p. 343.

Catocala nebraskæ, Dodge, Can. Ent. vii. p. 2 (1875).

Catocala somnus, Dodge, Can. Ent. xiii. p. 40 (1881).

Head and thorax brownish grey mixed with blackish; tegulæ

with blackish medial line, the patagia with some blackish scales near upper edge; pectus brownish white; tarsi blackish ringed with whitish; abdomen pale red-brown, the ventral surface whitish. Fore wing grey tinged with red-brown and irrorated with blackish; subbasal line black, sinuous, from costa to submedian fold; antemedial line double, black, oblique, sinuous; reniform obscurely defined by blackish and with black patch in centre, an oblique black bar above it from costa; an irregular oblique spot defined by black below end of cell; postmedial line black slightly defined on each side by grey, bent outwards below costa, then obliquely incurved, acutely angled outwards above vein 5, then incurved and minutely dentate, at submedian fold bent inwards and with dark streak on it; subterminal line grey defined on outer side by blackish, dentate, obliquely incurved from costa to below vein 7 where it is met by a faint oblique dark streak from termen below apex; a series of small black spots before termen; a fine waved black terminal line; cilia with a blackish line at middle and pale reddish brown tips. Hind wing pale scarlet, the hair on inner margin brownish, some brownish hair in base of submedian fold; an obliquely curved black medial band from costa to vein 1, its outer edge excurved at vein 5; terminal area black, narrowing to tornus, its inner edge incurved at veins 2 and 1; the termen narrowly white faintly tinged with red towards apex, then with series of small spots in the interspaces to vein 2; cilia white with slight dark marks at veins 6 to 2, then dark at base. Underside of fore wing white, an oblique black-brown shade from costa before middle to the obliquely curved black medial band narrowing to inner margin at inner area, terminal area black, its inner edge curved, the termen brownish grey towards apex; hind wing as above but the basal costal area and the postmedial area to vein 4 white.

Ab. 1. *somnus*. Head, thorax, and fore wing black sparsely irrorated with grey; abdomen and the hair at base of hind wing black.

Hab. U.S.A., Nebraska, 1 ♂, Colorado, 1 ♂, Berkeley (*Oslar*), 1 ♂, 3 ♀. *Exp.* 70-78 millim.

7206. *Catocala electilis*. (Plate CXCVIII. fig. 1.)

Catocala electilis, Wlk. xiii. 1209 (1857); Druce, Biol. Centr.-Am., Het. i. p. 360, pl. 31. f. 8.

Catocala cassandra, H. Edw. Proc. Calif. Ac. Sci. vi. p. 214 (1875); Smith, Cat. Noct. N. Am. p. 345.

Head and thorax grey mixed with black-brown; palpi white at base and with dark band at extremity of 2nd joint; tegulae with dark medial line; pectus white; tarsi black ringed with white; abdomen red-brown, the ventral surface whitish. Fore wing grey thickly irrorated with black, the outer half of medial area with a broad black shade; a subbasal black striga from costa; antemedial line double, filled in with grey, the outer line strong and black,

oblique, sinuous; reniform defined by blackish and its centre defined by blackish; an oblique elliptical pale spot defined by black below end of cell; postmedial line black defined on outer side by grey-white, bent outwards below costa, then obliquely incurved to above vein 5 where it is angled outwards, then inwardly oblique and dentate; subterminal line grey-white defined on each side by blackish, dentate, somewhat oblique from costa to below vein 6 and angled outwards in submedian fold; a series of minute blackish spots before termen. Hind wing scarlet; an obliquely curved black medial band from costa to just above inner margin towards which it narrows, its outer edge excurved to vein 5 and submedian fold; terminal area black, narrowing to tornus, its inner edge angled inwards at veins 2 and 1 and excurved at submedian fold; the termen white towards apex, then with series of small white spots in the interspaces to vein 2; cilia white chequered with black between veins 6 and 2, blackish towards tornus. Underside of fore wing white, an oblique black-brown shade from costa before middle to the black medial band which is obliquely excurved below vein 5, at inner area, terminal area black leaving the termen towards apex and the cilia whitish; hind wing as above, but the basal costal area to discal fold and the postmedial area to vein 5 white.

Ab. 1. Fore wing without the black medial shade.

Hab. U.S.A., Arizona; MEXICO, 1 ♀ type, Songra, Durango (Becker), 1 ♂, Mexico City (Hoegel), 1 ♂, Godman-Salvin Coll. *Exp.* 92 millim.

7207. *Catocala elocata*.

Noctua elocata, Esp. Schmett. iv. pl. 93 (A) ff. 1, 2 (1786); Godt. Lép. Fr. v. p. 58, pl. 46. f. 2; Mill. Icones, iii. pl. 129. ff. 4-6; Staud. Cat. Lep. pal. p. 247.

Noctua uxor, Hübn. Eur. Schmett., Noct. f. 328 (1802).

Noctua marita, Hübn. Eur. Schmett., Noct. f. 494 (1818).

Noctua nurus, Hübn. Eur. Schmett., Noct. ff. 655-6 (1822).

Catocala locata, Staud. Iris, iv. p. 327 (1891).

Catocala styx, Koller, Jahrb. Wien. Ent. Ver. xvi. p. 4, pl. 1. f. 1 (1905).

Catocala lais, Schultz, Ent. Zeit. Guben. xx. p. 94 (1906).

Catocala flavicans, Schultz, Ent. Zeit. Guben. xx. p. 94 (1906).

Catocala meridionalis, Schultz, Ent. Zeit. xxii. p. 168 (1909).

Catocala tenuivittata, Schultz, Ent. Zeit. xxii. p. 168 (1909).

Head and thorax grey mixed with brown and fuscous; tarsi blackish ringed with white; abdomen grey-brown, the ventral surface whitish. Fore wing grey mixed with olive-brown and fuscous; subbasal line indistinct, double, fuscous, waved, from costa to submedian fold; antemedial line double, fuscous, oblique, waved; reniform obscurely defined by fuscous, its outer edge somewhat dentate, a dark bar above it from costa, placed on a dark shade extending to inner margin; a grey spot obscurely defined by fuscous below end of cell; postmedial line double, bent outwards below costa, then obliquely downcurved and slightly sinuous,

angled outwards above vein 5, then inwardly oblique and dentate, a dark shade beyond it; subterminal line grey defined on each side by fuscous, dentate, oblique from costa to below vein 6; a series of blackish points before termen; cilia with a dark line near base and whitish tips. Hind wing scarlet, the hair on inner margin brownish; an obliquely curved medial black band with sinuous edges from costa to vein 1, then obsolescent to near inner margin; terminal area black, narrowing to tornus, its inner edge angled inwards at veins 2 and 1; the termen narrowly pale reddish at apex, then with series of slight reddish marks in the interspaces to vein 1; cilia white with slight fuscous marks near base, wholly fuscous towards tornus. Underside of fore wing white, an oblique black-brown shade from below costa before middle to the oblique medial black band with sinuous edges and narrowing to inner margin at submedian fold, a curved black subterminal band from costa to tornus, its inner edge slightly angled outwards at submedian fold; hind wing as above, but the basal costal area and postmedial area to discal fold, the median nervure and veins rising from it white.

Ab. 1. *stya*. Head, thorax, abdomen, and fore wing suffused with fuscous.

Ab. 2. *locata*. Hind wing with the medial band narrower and not reaching inner margin.

Ab. 3. *flavicans*. Hind wing yellow.

Ab. 4. *meridionalis*. Fore wing on underside with the basal and medial patches yellowish.

Hab. FRANCE; GERMANY, Zeller and Mutzell Colls.; AUSTRIA, Leech Coll.; HUNGARY, D'Emmich Coll.; SWITZERLAND, Frey Coll.; SPAIN, Gibraltar (*Irby*); GREECE, Merlin Coll.; S. SWEDEN; ARMENIA; KHURDISTAN; ASIA MINOR, Pontus, Bithynia, Taurus; CYPRUS (*Miss Bate, Bucknill*), 3 ♂; SYRIA; PERSIA, Urumiah (*Günther*), 1 ♂; W. TURKESTAN, Turcomania, Ferghana, Issyk-kul; W. SIBERIA, Altai; E. TURKESTAN, Ili. *Exp.* 64–88 millim.

Larva. Kirby, Butt. & Moths Eur. p. 275; Hffm. Raup. p. 148, pl. 37. f. 5.

Grey or brownish grey with dark mottlings and two broad dark lateral stripes, the ventral surface flesh-coloured with a series of brown spots; 8th somite with a flesh-coloured prominence with dark spot behind it; 11th somite with two yellowish prominences; head with two slight prominences. Food-plants, Poplar and Willow. 7–8.

7208. *Catocala oberthuri*.

Catocala oberthurii, Aust. Le Nat. i. p. 85 (1879); Oberth. Ét. Ent. vi. p. 92, pl. 1. f. 1; Staud. Cat. Lep. pal. p. 247.

Catocala gitana, Mab. Bull. Soc. Philom. ix. p. 64 (1885).

Head and thorax red-brown slightly tinged with grey and mixed with fuscous; tarsi blackish ringed with white; abdomen pale grey tinged with red-brown, the ventral surface whitish. Fore wing

grey strongly tinged with ochreous brown and slightly irrorated with fuscous; subbasal line indistinct, fuscous, sinuous, from costa to submedian fold; antemedial line indistinct, double, fuscous, oblique, sinuous; reniform with its centre and outer edge obscurely defined by fuscous, an indistinct oblique dark bar above it from costa, placed on a dark shade extending to inner margin; a pale rufous spot obscurely defined by fuscous below end of cell; post-medial line indistinctly double, bent outwards below costa, then obliquely downcurved, angled outwards above vein 5, then inwardly oblique and dentate, a dark shade beyond it; subterminal line greyish defined on outer side by fuscous, dentate, oblique from costa to below vein 6; a series of blackish points before termen; cilia with a fine dark line through them and whitish tips. Hind wing scarlet, the hair on inner margin brownish; an obliquely curved medial black band with slightly sinuous edges from costa to vein 1; terminal area black, narrowing to tornus, its inner edge slightly incurved at vein 2; the termen with slight reddish marks in the interspaces from apex to vein 2; cilia white with traces of a dark line near base, blackish towards termen. Underside of fore wing white, a black-brown shade from below costa before middle to the oblique medial black band with irregular inner edge at submedian fold, a curved black subterminal band narrowing to tornus; hind wing as above, but the basal costal area and postmedial area to submedian fold, the median nervure and veins rising from it white.

Ab. 1. *transiens*, Bang-Haas ined. Fore wing with blackish medial shade.

Hab. SPAIN, Andalusia, Gibraltar (*Irbys*), 1 ♀; MOROCCO, Tangier (*Meade-Waldo*), 1 ♀; ALGERIA, Leech and Crowley Colls., 6 ♂, 4 ♀, Batna, 1 ♂, 1 ♀. *Exp.* 78-84 millim.

7209. *Catocala francisca*. (Plate CXCVII. fig. 1.)

Catocala mariana, H. Edw. Proc. Calif. Ac. Sci. vi. p. 210 (1875) nec Streck. (1874); Smith, Cat. Noct. N. Am. p. 342.

Catocala francisca, H. Edw. Bull. Brooklyn Ent. Soc. iii. p. 57 (1880).

Catocala edwardsi, Kusnezov, Rev. Russ. Ent. iii. p. 76 (1903).

Catocala eldoradensis, Beutenm. Bull. Am. Mus. Nat. Hist. xxiii. p. 148 (1907).

♂ (*edwardsi*). Head and thorax brown mixed with fuscous and grey-white; frons with lateral blackish bars; pectus and legs whitish tinged with brown, the tarsi blackish ringed with white; abdomen grey-brown with an ochreous tinge, the anal tuft with some fuscous, the ventral surface white tinged with ochreous. Fore wing dark reddish brown tinged with fuscous and mixed with grey; subbasal line indistinct, dark, sinuous, from costa to submedian fold; antemedial line double, filled in with grey, oblique, sinuous; reniform with its centre and outer edge very indistinctly defined, a dark bar above it from costa; a spot below end of cell very indistinctly defined by fuscous; postmedial line indistinct, double filled in with grey, bent outwards below costa, then

obliquely downcurved, angled outwards above and below vein 5, then oblique, angled outwards above vein 2 and at submedian fold and inwards at vein 1; subterminal line whitish defined on outer side by fuscous, dentate, oblique from costa to below vein 7; the terminal area greyer with a series of blackish points before termen; a fine waved dark terminal line; cilia with a dark line at middle and white tips. Hind wing scarlet, the hair on inner margin brown, the basal inner area with some brown hair; an obliquely curved black medial band from costa to vein 1, its outer edge slightly sinuous; terminal area black, narrowing to tornus, its inner edge incurved at veins 2 and 1; the termen narrowly white and faintly tinged with red towards apex; cilia white except towards tornus. Underside of fore wing white, an oblique brown shade from costa before middle to the medial blackish band at vein 1, the band oblique to vein 4, with sinuous edges and narrowing to inner margin; terminal area blackish, narrowing to tornus, the termen grey-white towards apex; hind wing as above but the basal costal area ochreous white, the postmedial area whitish to discal fold.

Ab. 1. *francisca*. Fore wing with a faint bronze-green tinge.

Hab. CANADA, Br. Columbia, New Westminster in Coll. W. Barnes; U.S.A., Colorado, California, 5 ♂. *Eap.* 62-72 millim.

7210. *Catocala allusa*. (Plate CXCVII. fig. 2.)

Catocala mariana, Streck. Lep. Rhop. & Het. p. 99 (1874), nec Rmbr. 1858.

Catocala allusa, Hulst, Bull. Brooklyn Ent. Soc. vii. p. 45 (1884); Smith, Cat. Noct. N. Am. p. 342.

Catocala frenchii, Poling, Can. Ent. xxxiii. p. 125 (1901).

Head and thorax dark-brown mixed with grey-white; palpi whitish at base; tegulae with dark medial line; pectus and legs with more grey, the tarsi black with pale rings; abdomen grey-brown, the ventral surface white tinged with brown. Fore wing dark brown mixed with grey-white and blackish; subbasal line indistinct, dark, defined on outer side by whitish, sinuous, from costa to submedian fold; antemedial line double, black filled in with whitish, waved, angled inwards at vein 1; reniform with blackish centre and pale annulus indistinctly defined by blackish, a dark bar above it from costa and a whitish patch before it extending to costa; a red-brown and whitish spot defined by black below end of cell connected with the postmedial line, which is indistinct, black, slightly defined on outer side by whitish, bent outwards below costa, then obliquely downcurved, angled outwards above vein 5, then incurved, angled outwards above vein 2 and in submedian fold and inwards at vein 1; the postmedial area tinged with rufous at middle; subterminal line whitish defined on outer side by black, dentate, oblique from costa to below vein 7; a series of small blackish spots before termen; cilia whitish and brown with a dark line through them. Hind wing scarlet, the hair on

inner margin fuscous; an obliquely curved black medial band from costa to submedian fold, its outer edge slightly sinuous; terminal area black, narrowing to tornus, its inner edge incurved at vein 2 and excurved at submedian fold; the apex narrowly white; cilia white except towards tornus. Underside of fore wing white, an oblique blackish shade from costa before middle to the obliquely curved black medial band at submedian fold, its outer edge slightly angled outwards at submedian fold, terminal area black, the termen grey towards apex; hind wing as above, but the basal costal area brownish white, the postmedial area white to vein 3.

Hab. CANADA, Br. Columbia, Coldstream Ranch (*Miss Ricardo*), 1 ♂, 1 ♀, New Westminster, Vancouver I.; U.S.A., Washington, California, Truckee in Coll. W. Barnes. *Exp.* 74 millim. This is probably an aberration of *C. francisca*.

7211. *Catocala pura*. (Plate CXCVII. fig. 3.)

Catocala pura, Hulst, Bull. Brooklyn Ent. Soc. ii. p. 96 (1880); Smith, Cat. Noct. N. Am. p. 341.

Head and thorax white mixed with black and some brown; palpi blackish towards extremity; frons with lateral black bars; tegulæ with black lines at middle and near tips, the patagia with black lines near edges; pectus and legs white mixed with fuscous, the tarsi banded black and white; abdomen pale grey tinged with reddish brown, the ventral surface white slightly irrorated with brown. Fore wing white tinged with grey in parts and thickly irrorated with black-brown; subbasal line black, sinuous, from costa to submedian fold; antemedial line double, blackish, oblique, sinuous; reniform large, defined by diffused black and with its centre defined by black, an oblique black bar above it from costa, some white before it in cell; a whitish spot obscurely defined by blackish below end of cell, with a sinuous blackish line from it to inner margin; postmedial line indistinctly double, bent outwards below costa, then oblique and slightly sinuous to below vein 6, then dentate, angled outwards above vein 2 and at submedian fold and inwards at vein 1; subterminal line whitish defined on outer side by fuscous, dentate, somewhat oblique from costa to below vein 6; a series of slight black lunules just before termen. Hind wing scarlet, the hair on inner margin brownish; an obliquely curved medial black band from costa to submedian fold, its outer edge excurved below costa and at vein 5; terminal area black, narrowing to tornus, its inner edge incurved at veins 2 and 1; the termen narrowly white towards apex tinged with scarlet at inner edge, then with series of slight spots in the interspaces to vein 2; cilia white with some fuscous at base except towards apex. Underside of fore wing white, an oblique black-brown shade from costa before middle to the oblique black medial band with sinuous edges at inner area, the terminal area black with the

costa towards apex and the apex grey; hind wing as above but the basal costal area and the postmedial area to vein 5 white.

Hab. U.S.A., Kansas, Colorado (*Snow*), 1 ♂, 1 ♀, New Mexico.
Exp. 74–76 millim.

7212. *Catocala unijuga*. (Plate CXCVII. fig. 4.)

Catocala unijuga, Wlk. xiii. 1194 (1857); Streck. Lep. Rhop. & Het. p. 37, pl. v. f. 9; Smith, Cat. Noct. N. Am. p. 340.

Catocala fletcheri, Beutenm. Bull. Am. Mus. xix. p. 509 (1903).

Catocala agatha, Beutenm. Bull. Am. Mus. xxiii. p. 936 (1907).

Head and thorax grey-white mixed with brown and black; frons with lateral black bars; tegulae with black medial line, the prothorax with blackish bar, the patagia with blackish lines near edges; pectus brownish white; legs brownish and white, the tarsi black ringed with white; abdomen grey-brown, the ventral surface brownish white. Fore wing grey-white thickly irrorated and in parts suffused with black-brown; subbasal line black defined on outer side by whitish, from costa to submedian fold; antemedial line double, black filled in with whitish, oblique, sinuous; reniform defined by diffused black and its centre defined by blackish, its outer edge somewhat dentate, an oblique blackish bar above it from costa, some whitish before it in cell; an indistinct curved slightly waved line beyond the cell, a spot obscurely defined by dark brown below end of cell with a sinuous black line from it to inner margin; postmedial line black slightly defined on outer side by white, bent outwards below costa, then obliquely downcurved, angled outwards above and below vein 5, then oblique, dentate and more strongly angled inwards at vein 1; subterminal line white defined on outer side by black-brown, dentate, oblique from costa to below vein 6; a series of small black lunules slightly defined on outer side by white just before termen. Hind wing scarlet, the hair on inner margin brown and the basal inner area clothed with some brown hair; an obliquely curved medial black band from costa to vein 1 towards which it narrows, its edges sinuous; terminal area black, narrowing to tornus, its inner edge incurved at veins 2 and 1; the termen narrowly white towards apex; cilia white with some fuscous near base except towards apex. Underside of fore wing white, an oblique black-brown antemedial shade from costa to vein 1, an obliquely curved black medial band with sinuous edges, narrowing to inner margin, the terminal area black, the termen grey-white towards apex; hind wing as above but the basal costal area and the postmedial area white to discal fold, a slight black discoidal lunule confluent above with the medial band.

Ab. 1. agatha. Fore wing suffused with fuscous, the markings indistinct except the white subterminal line.

Ab. 2. fletcheri. Fore wing with the markings much darker and stronger, especially the antemedial and postmedial lines; hind

wing with the red replaced by deep brown, the medial band not reaching inner margin; cilia white to tornus.—Regina.

Hab. CANADA, Renfrew Co., 1 ♀, Montreal (*Barnston*), 1 ♂, Toronto (*Gibson*), 1 ♀, Assiniboia, Regina, Alberta, Calgary (*Wolley-Dod*), 1 ♀; U.S.A., Northern and Eastern States, New York (*Doubleday, Grote*), 4 ♂, 3 ♀ type, Wisconsin, Colorado. *Exp.* 86–94 millim.

Larva. Kelliecott, Can. Ent. xiii. p. 38.

Grey to greyish drab, nearly unicolorous, the ventral surface pinkish with elliptical black spots on each somite; sublateral series of hoary filaments; without protuberances; head with black line behind. Food-plants, Poplar and Willow.

7213. *Catocala semirelictæ*. (Plate CXCVII. fig. 5.)

Catocala semirelictæ, Grote, 6th Rep. Peab. Acad. Sci. p. 35 (1874); id. Bull. Buff. Soc. Nat. Sci. ii. pl. I. f. 11; Smith, Cat. Noct. N. Am. p. 342.

Catocala lucilla, Worthington, Papilio, iii. p. 39 (1883); Smith, Cat. Noct. N. Am. p. 340.

Head and thorax white mixed with fuscous black; palpi white at base; frons with lateral black bars; tegulæ with medial black line; pectus white; legs white irrorated with brown, the fore tibiæ at extremities and tarsi banded with black; abdomen whitish suffused with ochraceous brown, the ventral surface white. Fore wing white irrorated with fuscous brown; a diffused black shade below base of cell; subbasal line black, sinuous, from costa to submedian fold; antemedial line strong, black, oblique, sinuous; the medial area with white patches on costal area and beyond upper part of reniform, some blue-grey suffusion on basal half of inner area and beyond lower part of reniform and black suffusion on outer part of inner area extending to termen and from costa to the sinus of postmedial line including the reniform, which is large, blackish with interrupted white annulus and somewhat dentate outer edge; a whitish spot defined by black below end of cell formed by a sinus of the postmedial line, which is black, bent outwards below costa, then dentate, oblique to below vein 6 and at vein 2 forming the sinus below end of cell; subterminal line white defined on outer side by fuscous black, strongly dentate, somewhat oblique from costa to below vein 6; a series of black points before termen; a waved black terminal line. Hind wing scarlet, the hair on inner margin brown; a black band oblique from middle of costa to vein 2, then bent inwards and ending at submedian fold; terminal area black, narrowing to tornus and with sinuous inner edge below vein 3; cilia white. Underside of fore wing black-brown, the base and inner area to middle whitish, an oblique white medial patch from below costa to vein 2, postmedial band white, obliquely curved, obsolescent towards inner margin, the costa whitish towards apex; hind wing with the basal costal area and postmedial area to vein 5 white, the bands as above.

Hab. CANADA, Ontario, 1 ♂ type, Manitoba, Husavick (*Wallis*), 1 ♂, Winnipeg (*Wallis*), 1 ♀; U.S.A., Indiana, Illinois. *Exp.* 80 millim. The type bears a label that it was exhibited at the Centennial of 1876, and the red of hind wing is faded to pale yellowish.

*7214. *Catocala nevadensis*. (Plate CXC VII. fig. 6.)

Catocala nevadensis, Beutenm. Bull. Am. Mus. xxiii. p. 935 (1907).

Catocala montana, Beutenm. Bull. Am. Mus. xxiii. p. 935 (1907).

♂. Head and thorax fuscous white mixed with black; frons with lateral black bars; tegulae with black medial line; pectus and legs white mixed with blackish; the tarsi ringed black and white; abdomen pale grey tinged with brown, the ventral surface white. Fore wing white thickly irrorated and suffused with black; sub-basal line black, sinuous, from costa to submedian fold; antemedial line black defined on inner side by whitish, oblique, waved; an oblique irregularly wedge-shaped white patch from middle of costa to median nervure; reniform indistinctly defined by black and with some black in centre, its outer edge irregular, some black suffusion above it on costa; an oblique wedge-shaped white spot defined by black below end of cell; postmedial line blackish defined on outer side by white, forming a small spot at costa, bent outwards below costa, obliquely incurved to below vein 6, then waved, some white suffusion faintly tinged with rufous before it from costa to discal fold and beyond it at middle; subterminal line white defined on outer side by diffused black and on inner side also towards costa and inner margin, waved, rather oblique from costa to vein 6; a series of black striae before termen. Hind wing scarlet; an oblique black medial band from costa to vein 1 towards which it is slightly bent inwards, expanding slightly below costa and its outer edge excurved at vein 5; a terminal black band narrowing to tornus, its inner edge excurved in submedian interspace; the termen narrowly white tinged with red towards apex and with slight spots in the interspaces between veins 6 and 2; cilia white, brown towards tornus. Underside of fore wing white, an oblique blackish shade from costa to submedian fold where it joins the oblique black postmedial band narrowing to inner margin and with its outer edge excurved at vein 5, the terminal area black leaving the apical part of termen whitish with some black points on termen; hind wing with the basal costal area and the postmedial area to vein 4 white, a small black discoidal spot conjoined to the medial band.

♀. Fore wing more suffused with black.

Ab. 1. *montana*. Fore wing with the white patches on medial and postmedial areas indistinct and irrorated with blackish; hind wing with the white on termen not tinged with red.

Hab. U.S.A., California, Sierra Nevada, type ♀ in Am. Mus. Nat. Hist., Yosemite Valley in Coll. W. Barnes. *Exp.* 80 millim.

7215. *Catocala adultera*.

Catocala adultera, Mén. Motsch. Ét. v. p. 47 (1856); id. ibid. 1858, pl. 2. f. 3; id. Enum. Mus. Petrop. iii. p. 157, pl. 17. f. 1; Staud. Cat. Lep. pal. p. 248.

Head and thorax grey-white mixed with brown and black; palpi white at base, blackish towards tips; frons with lateral black bars; tegulæ black at tips, the prothorax with narrow blackish band; pectus white; legs white mixed with fuscous, the tarsi black ringed with white; abdomen reddish brown, the ventral surface white. Fore wing grey-white thickly irrorated and suffused with black-brown; subbasal line black, from costa to submedian fold; antemedial line double, black, the outer line strong, oblique, sinuous; the medial area with a white patch in and below the cell; reniform whitish strongly defined by black and with black lunule in centre, an oblique dark bar above it from costa; a rather triangular white spot defined by black below end of cell; post-medial line indistinctly double, black filled in with white, the inner line strong, bent outwards below costa, then obliquely incurved and slightly waved below vein 6, oblique, dentate, more strongly angled outwards above vein 2 and at submedian fold, and inwards at veins 2 and 1, a whitish patch beyond it at middle; subterminal line white defined on outer side by fuscous and slightly on inner side, dentate, somewhat oblique from costa to below vein 6; a series of slight black lunules just before termen. Hind wing scarlet; the hair on inner margin brown, the base with slight brownish streaks; an obliquely curved black medial band from costa to vein 1, its outer edge excurved at vein 5; terminal area black, narrowing to tornus, its inner edge incurved at veins 2 and 1; the termen narrowly white towards apex; cilia white. Underside of fore wing white, a broad oblique black-brown band from costa before middle to the obliquely curved black medial band with sinuous edges at inner area, terminal area black, the termen towards apex grey-white; hind wing as above, but the basal costal area white and the postmedial area white to vein 5.

Hab. RUSSIA, St. Petersburg, Zeller Coll.; W. SIBERIA, Altai; MONGOLIA, Changhai Mts.; E. SIBERIA, Amurland, 1 ♂, Ussuri. *Exp.* 76 millim.

7216. *Catocala hermia*. (Plate CXCVII. fig. 7.)

Catocala hermia, H. Edw. Bull. Brooklyn Ent. Soc. ii. p. 93 (1880); Smith, Cat. Noct. N. Am. p. 343.

Head and thorax fuscous black mixed with grey-white and some pale ochreous brown, a whitish line behind the tegulæ; palpi whitish at base; pectus white; legs white irrorated with brown, the fore and mid tibiæ near extremities and the tarsi banded with black; abdomen whitish brown, the ventral surface whiter. Fore wing fuscous black irrorated with white, the postmedial area white

at middle; subbasal line slight, black defined on outer side by whitish, sinuous, from costa to submedian fold; antemedial line black defined on inner side by white, oblique, sinuous; a white patch in cell before the reniform, which has a blackish centre and whitish annulus, its outer edge dentate; an oblique pear-shaped white spot defined by blackish below end of cell connected with the postmedial line, which is black defined on outer side by white, bent outwards below costa, then oblique, angled outwards above and below vein 5, then waved, at vein 2 forming the sinus below end of cell and angled inwards at vein 1; subterminal line white defined on outer side by fuscous, strongly dentate; a series of blackish points before termen. Hind wing crimson-red; post-medial line black, oblique from costa to vein 4 and ending at submedian fold, its outer edge indented at discal fold; the terminal area black narrowing to tornus and with sinuous inner edge and leaving some white tinged with red on termen; cilia white. Underside of fore wing black, the apical area grey, a white patch at base, an oblique white medial patch from below costa to below vein 2, postmedial band white, obliquely curved; hind wing crimson, the basal costal area white, the postmedial area white to vein 5, then with white streaks on the veins, the postmedial and terminal bands as above.

Hab. U.S.A., Colorado (*Snow, Cockerell*), 1 ♂, 1 ♀, New Mexico.
Exp. 70 millim.

7217. *Catocala grotiana*. (Plate CXCVII. fig. 8.)

Catocala grotiana, Bailey, N. Am. Ent. i. p. 21 (1879); Smith, Cat. Noct. N. Am. p. 342.

♀. Head and thorax fuscous black mixed with some white; antennæ with the basal joint white on outer side; pectus white mixed with grey; legs fuscous irrorated with white, the tarsi ringed with white; abdomen brownish grey, the ventral surface white tinged with ochreous brown. Fore wing fuscous black irrorated with white, the postmedial area white irrorated with fuscous except towards costa and inner margin; subbasal line indistinct, black, excurved below costa and ending at submedian fold; antemedial line indistinct, black defined on inner side by white towards costa and inner margin, oblique, sinuous; some white in cell before the reniform which is very indistinctly defined by white scales, its outer edge dentate; an indistinct oblique pear-shaped whitish mark below end of cell, obscurely defined by blackish and connected with the postmedial line, which is black, bent outwards below costa, then oblique and sinuous, angled outwards above vein 5, then dentate; subterminal line white defined on outer side by blackish, strongly dentate, somewhat angled outwards above vein 5; a series of blackish points defined on outer side by white before termen. Hind wing crimson-red; slight streaks of fuscous-brown hair at base and the hair on inner

margin fuscous brown; postmedial band black, oblique from costa to vein 4 and ending at submedian fold, its outer edge indented at discal fold; terminal area black, narrowing to tornus, its inner edge sinuous, some white at apex; cilia white with a fuscous line through them. Underside of fore wing black, the apex tinged with grey, a white patch at base, an oblique white medial patch from subcostal nervure to vein 2, its inner edge dentate, an obliquely curved white postmedial band slightly angled outwards in submedian fold; hind wing crimson-red, the costal area white at base, the postmedial area white to vein 5, then with white streaks on the veins, the postmedial and terminal bands as above, but the former continued to inner margin as a narrow line.

Hab. U.S.A., Colorado (*Snow*), 1 ♀. *Exp.* 78 millim.

7218. *Catocala briseis*. (Plate CXCVII. fig. 9.)

Catocala parta, Wlk. xiii. 1193 (nec Guen.).

Catocala briseis, W. H. Edw. Proc. Ent. Soc. Phil. ii. p. 508 (1864);
Streck. Lep. Rhop. & Het. p. 20, pl. 3. f. 7; Smith, Cat. Noct. N. Am.
p. 342.

Catocala albida, Beutenm. Bull. Am. Mus. xxiii. p. 936 (1907).

Head and thorax fuscous black mixed with some brown and grey-white; tegulæ with faint dark medial line; patagia with black lines near edges; pectus and legs with more white, the tarsi black ringed with white; abdomen fuscous brown, the ventral surface pale rufous with the terminal segments grey-white. Fore wing fuscous black mixed with grey-white, the interspaces of postmedial area rufous except at costa and inner margin; subbasal line indistinct, black, excurved below costa and ending at submedian fold; antemedial line black defined on inner side by grey, oblique, dentate; reniform very faintly defined by black and with some brownish white in centre, a faint oblique blackish bar above it from costa and an oblique whitish spot before it in the cell; a brownish white spot defined by black below end of cell; postmedial line black defined on inner side by whitish and on outer side at costa, bent outwards below costa, then obliquely downcurved, slightly angled outwards above and below vein 5, then waved and strongly angled inwards at vein 1; subterminal line white defined on outer side by blackish, dentate, oblique from costa to below vein 6; a series of small blackish lunules before termen; cilia whitish and brown with a dark line through them. Hind wing deep scarlet, the hair on inner margin brown, some brownish hair on basal inner area; an obliquely curved black medial band from costa to vein 1, its outer edge excurved at vein 5; terminal area black, narrowing to tornus, its inner edge incurved at veins 2 and 1; the apex narrowly white with a faint reddish tinge on its inner edge; cilia white with a dark line near base from vein 6 to 2, then dark at base and wholly dark towards tornus. Underside of fore wing white, an oblique black band from costa before middle to the oblique black medial band with sinuous edges at vein 1, terminal

area black; the termen grey towards apex; hind wing as above, but the basal costal area brownish white, a black discoidal lunule conjoined above to the medial band and with white spot beyond it, the medial band reaching inner margin, the narrow postmedial area white to vein 4.

Ab. 1. Fore wing with a patch before the angle of postmedial line and the postmedial area except at costa and inner margin nearly pure white.

Ab. 2. *albida*. Head and thorax whitish grey; fore wing bluish grey, the costal area and the area before and beyond the reniform whitish, the reniform with white and black annulus, the spot below it whitish defined by black, the subterminal line bluish white.

Hab. CANADA (*Norman*), 1 ♂, Hudson's Bay, St. Martin's Falls (*Barnston*), 1 ♀, Ottawa (*Fletcher*), 1 ♂, Manitoba, Cartwright (*Heath*), 2 ♀; U.S.A., Northern, Eastern, and Middle States, New York (*Doubleday*), 1 ♂, Buffalo (*Grote*), 1 ♂, Evans Center (*Grote*), 1 ♂, 1 ♀. *Exp.* 68-74 millim.

7219. *Catocala beaniana*. (Plate CXCVII. fig. 10.)

Catocala beaniana, Grote, Can. Ent. x. p. 195 (1878); id. Ill. Essay, p. 67, pl. iv. f. 42; Smith, Cat. Noct. N. Am. p. 341.

♀. Head and thorax grey-white mixed with brown and black; the tegulæ with black lines at middle and near tips, the patagia with black streaks near edges; palpi whitish at base, the 2nd joint towards extremity and sides of frons blackish; pectus and legs brownish white, the latter irrorated with brown, the extremities of fore tibiæ and the tarsi banded with black; abdomen ochreous brown, the ventral surface brownish white. Fore wing bluish grey irrorated and in parts suffused with fuscous brown; subbasal line black, waved, from costa to submedian fold; antemedial line double, blackish, oblique, waved, angled inwards on vein 1; a triangular whitish mark in cell before the reniform which is defined by blackish and with blackish striga in centre, a diffused dark mark above it on costa; a whitish spot defined by blackish below end of cell, connected with the postmedial line; an indistinct waved line beyond the cell from below costa to vein 3; postmedial line blackish, bent outwards below costa, then oblique and minutely dentate, acutely angled outwards above and below vein 5, then dentate, at vein 2 forming the sinus below end of cell and strongly angled inwards at vein 1; subterminal line whitish defined on outer side by blackish, strongly dentate, somewhat oblique from costa to below vein 6; a slight oblique dark shade from termen below apex to the postmedial line; a series of black striæ before termen; a waved black terminal line; cilia brownish white with a dark line through them. Hind wing rather pale scarlet, the hair on inner margin brownish; medial black band oblique from middle of costa to submedian fold, then slightly

incurved and ending at vein 1, its outer edge slightly indented at discal fold; the terminal area black, narrowing to tornus, its inner edge curved inwards at veins 2 and 1; the termen with slight scarlet spots in the interspaces from apex to vein 2 and some white at apex; cilia white with some black-brown at base. Underside of fore wing black, a white patch at base, an oblique medial white patch from below costa to vein 2, an obliquely curved white postmedial line slightly angled outwards at submedian fold, some whitish on apical part of termen; hind wing with the basal costal area white, the postmedial area white to vein 5, then with white streaks on the veins, the medial and terminal bands as above.

Hab. U.S.A., Illinois, 1 ♀ type. *Exp.* 80 millim.

7220. *Catocala augusta*. (Plate CXCVIII. fig. 2.)

Catocala augusta, H. Edw. Proc. Calif. Ac. Sci. vi. p. 184 (1875); Smith, Cat. Noct. N. Am. p. 341.

Catocala portia, H. Edw. Bull. Brooklyn Ent. Soc. ii. p. 94 (1880).

Catocala sara, French, Can. Ent. xv. p. 163 (1883); Smith, Cat. Noct. N. Am. p. 346.

Catocala sierræ, Beutenm. Bull. Am. Mus. ix. p. 212 (1897).

Head and thorax grey-white mixed with reddish brown and black; frons with lateral black bars; tegulæ with black lines near base and at middle, the prothorax with blackish bar, the patagia with black lines near edges; pectus and legs brownish white, the latter irrorated with black; abdomen pale red-brown, the ventral surface white tinged with red-brown. Fore wing grey-white tinged in parts with brown and irrorated with black; subbasal line blackish, sinuous, from costa to vein 1; antemedial line black, oblique, sinuous; reniform large, tinged with red-brown and incompletely defined by blackish, its outer edge somewhat dentate; an oblique black striga above it from costa; a whitish spot below end of cell faintly defined by blackish; postmedial line black, bent outwards below costa, then oblique, sinuous, acutely angled outwards above vein 5, then oblique, dentate, and strongly angled inwards at veins 2 and 1; subterminal line very indistinct, whitish, faintly defined on outer side by fuscous and on inner side at costa; a series of blackish points just before termen. Hind wing scarlet, the hair on inner margin brownish white; a black medial band, oblique to submedian fold, then curved inwards and ending at vein 1, its outer edge excurved at vein 5; terminal area black, narrowing to tornus, its inner edge incurved at veins 2 and 1 and excurved at submedian fold; the termen with a small white patch at apex slightly tinged with reddish on inner side, then a series of small spots in the interspaces to vein 2; cilia white chequered with black between veins 6 and 2, wholly blackish towards tornus. Underside of fore wing white, an oblique black-brown shade from costa before middle to vein 1, an obliquely curved medial black band with sinuous edges, the terminal area

black, the termen white towards apex; hind wing as above, but the basal costal area and the postmedial area to discal fold white.

Ab. 1. *sara*. Fore wing with the basal area and the inner area to the subterminal line suffused with black.

Ab. 2. *sierræ*. Fore wing very thickly irrorated with black so as almost to obscure the ground-colour and lines; the subterminal line very distinct, creamy white defined on outer side by black, dentate.

Hab. U.S.A., Colorado, Jamestown, California, San Diego, Sierra Nevada, Lake Tahoe, Arizona, Phoenix (*Kunzé*), 5 ♂, 5 ♀, Huachuca Mts., 1 ♂. *Exp.* 78-88 millim.

7221. *Catocala mescei*. (Plate CXCVIII. fig. 3.)

Catocala mescei, Grote, Can. Ent. v. p. 161 (1873); Smith, Cat. Noct. N. Am. p. 340.

Catocala rosalia, H. Edw. Bull. Brooklyn Ent. Soc. iii. p. 55 (1880); Smith, Cat. Noct. N. Am. p. 341.

Head and thorax white mixed with dark brown and blackish; palpi with more black towards extremity; frons with lateral blackish bars; tegulæ with black medial line; pectus brownish white; legs white irrorated with black, the tarsi blackish ringed with white; abdomen pale reddish brown. Fore wing grey-white irrorated with brown and blackish; subbasal line blackish, curved, from costa to submedian fold; antemedial line blackish, oblique, waved; reniform diffused blackish with white lunule in centre, its outer edge dentate, an oblique blackish bar above it from costa and a white patch before it in the cell; a large white spot defined by blackish below end of cell, connected by a sinus with the postmedial line at vein 2; postmedial line blackish, bent outwards below costa, then oblique and slightly sinuous, acutely angled outwards above vein 5, then oblique, dentate, and strongly angled inwards at vein 1; subterminal line white defined on outer side by blackish, dentate, somewhat oblique from costa to below vein 6; a faint oblique dark shade from termen below apex; a series of blackish lunules just before termen. Hind wing scarlet; a black medial band, oblique from costa to submedian fold, then bent inwards to near inner margin, its outer edge excurved at vein 5; terminal area black, narrowing to tornus, its inner edge angled inwards at veins 2 and 1 and excurved at submedian fold; the termen narrowly white towards apex with a slight red tinge on inner side, then with series of slight spots in the interspaces to vein 2; cilia white with slight dark marks at veins 6 to 2, wholly dark towards tornus. Underside of fore wing white, an oblique black-brown shade from costa before middle to the obliquely curved black median band at inner area, the terminal area blackish, the termen brownish grey towards apex; hind wing as above but the basal costal area white, the postmedial area white to vein 5.

Hab. U.S.A., Wisconsin, Racine, 1 ♂, 1 ♀, Kansas, Colorado. *Exp.*, ♂ 74, ♀ 80 millim.

Larva. Bunker, Can. Ent. xv. p. 100.

Pale drab or cream colour, a pale brown band between 5th and 6th somites; 7th somite with an elevated obscure brown dorsal band; ventral surface blackish brown; head with dark brown line in front. Food-plant, Poplar.

7222. *Catocala repudiata*. (Plate CXCVIII. fig. 4.)

Catocala repudiata, Staud. Stett. Ent. Zeit. 1888, p. 55; id. Cat. Lep. pal. p. 247,

♂. Head and thorax grey slightly tinged with brown and mixed with black, the tegulæ at middle and tips and the prothorax with black lines; palpi white towards base; frons with lateral black bars; fore tibiæ at extremity and the tarsi banded with black; abdomen ochreous brown tinged with fuscous, the ventral surface white tinged with ochreous brown. Fore wing pale purplish grey faintly tinged in parts with brown and thickly irrorated with fuscous black; subbasal line slight, black, waved, from costa to submedian fold; antemedial line black defined on inner side by grey, expanding into a small spot at costa, oblique, sinuous; reniform with its centre irrorated with fuscous and grey annulus defined by black, its outer edge dentate; an oblique blackish bar from costa to the reniform, with an oblique grey shade before it extending to the median nervure where it is continuous with the obliquely curved grey mark defined by blackish below end of cell; postmedial line black defined on outer side by grey, bent outwards below costa, then obliquely downcurved, acutely angled outwards above and below vein 5, then dentate, at vein 2 forming the sinus below end of cell and strongly angled inwards at vein 1; subterminal line grey defined on outer side by blackish, dentate, oblique from costa to below vein 6; a series of black striæ before termen; cilia ochreous white with a black line through them. Hind wing pale scarlet; an oblique black band from middle of costa to vein 1 where it is hooked, its outer edge indented at discal fold and below vein 3; terminal area black, narrowing to tornus, its inner edge angled inwards at veins 2 and 1, the termen white tinged with red from apex to vein 2; cilia white, fuscous towards tornus and with slight fuscous marks at base at the veins. Underside of fore wing black, the termen grey, expanding towards apex, a white patch at base, an oblique white medial patch from costa to submedian fold, and an obliquely curved white postmedial band slightly angled outwards at submedian fold; hind wing with the basal costal area white, the postmedial area white to vein 4 and with white streaks on veins 3 and 2, the black bands as above, but with more white on costal area.

Hab. W. TURKESTAN, Ferghana, Issyk-Kul, 1 ♂; E. TURKESTAN, Ili, in Coll. Püngeler. *Exp.* 70 millim.

*7223. *Catocala jessica*.

Catocala jessica, H. Edw. Pacific Coast Lep., Proc. Calif. Acad. Sci. No. 23 (Jan. 1877); Smith, Cat. Noct. N. Am. p. 341.

Head and thorax grey mixed with brown; antennæ blackish; pectus white; abdomen greyish tinged with fulvous and with fulvous segmental lines, the ventral surface white with fulvous segmental lines. Fore wing dull grey tinged with brown and thickly irrorated with fuscous; subbasal line black, dentate, from costa to submedian fold; antemedial line blackish with some whitish at middle, oblique, sinuous, defined on outer side by brown; reniform defined by diffused blackish; a fawn-coloured spot defined by diffused brown below end of cell; postmedial line blackish, bent outwards below costa, then oblique, angled outwards above and below vein 5, then oblique and dentate, joining the antemedial line at inner margin; subterminal line whitish defined on outer side by black, dentate, oblique from costa to vein 6; a series of small black lunules before termen. Hind wing pale scarlet; the inner margin brownish; medial band narrow, black, almost straight, very slightly constricted at middle, ending at vein 1; terminal band moderate, its inner edge angled inwards at veins 2 and 1; the termen towards apex and spots between veins 6 and 2 white, tinged with red on inner side; cilia white tinged with red at base. Underside of fore wing white tinged with red especially on the medial area, an oblique blackish shade from costa before middle to the curved postmedial band on inner area, the terminal area black leaving the apex pale; hind wing with the basal costal area and postmedial area white to discal fold.

Hab. U.S.A., California, Kern Co., Havilah. *Exp.*, ♂ 66, ♀ 80 millim. This species is unknown to me.

7224. *Catocala stretchii*. (Plate CXCVIII. fig. 5.)

Catocala stretchii, Behr, Trans. Am. Ent. Soc. iii. p. 24 (1870); Smith, Cat. Noct. N. Am. p. 341.

♂. Head and thorax grey-white mixed with brown and some fuscous; pectus brownish white; abdomen very pale red-brown, the ventral surface white. Fore wing grey-white thickly irrorated with blackish brown; subbasal line blackish, curved, from costa to median nervure; antemedial line double, blackish filled in with white at inner margin, oblique, sinuous; reniform large, defined by blackish and with black-brown centre, an oblique blackish bar above it from costa; an oblique pale mark obscurely defined by dark brown below end of cell, with a blackish line from it to inner margin; postmedial line blackish, bent outwards below costa, then oblique, acutely angled outwards below vein 5, then inwardly oblique, dentate, strongly angled inwards at vein 1, and defined on outer side by white towards inner margin; subterminal line whitish slightly defined on outer side by blackish, dentate, oblique

from costa to below vein 6 ; a series of blackish striæ just before termen. Hind wing pale scarlet, the hair on inner margin brownish white ; a narrow black medial band, oblique to submedian fold, then bent inwards and ending at vein 1, its edges sinuous ; terminal area black, narrowing to tornus, its inner edge angled inwards at veins 2 and 1 and excurved at submedian fold ; the termen with a small white patch at apex faintly tinged with red on inner side, then a series of small spots in the interspaces to vein 2 ; cilia white with slight fuscous marks at veins 6 to 2, fuscous towards tornus. Underside of fore wing white, an oblique blackish band from costa before middle to the obliquely curved blackish medial band with sinuous edges at vein 1, terminal area black, the apex whitish ; hind wing as above, but the basal costal area to discal fold and the postmedial area to vein 5, white.

Hab. U.S.A., Colorado, Glenwood Springs, 1 ♂, California, Sierra Nevada, 1 ♂. *Exp.* 86–88 millim.

7225. *Catocala hippolyta*. (Plate CXCVIII. fig. 6.)

Catocala hippolyta, Streek. Lep. Rhop. & Het. p. 99 (1874) ; H. Edw. Proc. Calif. Acad. Sci. vi. p. 211 (1875) ; Smith, Cat. Noct. N. Am. p. 341.

♂. Head and thorax white mixed with brown ; pectus white ; fore tibiæ at extremities and the tarsi banded with black ; abdomen white tinged with ochreous brown, the ventral surface white with slight ochreous rings towards extremities. Fore wing bluish white thickly irrorated with dark brown ; subbasal line blackish, excurved below costa and ending at submedian fold ; antemedial line fuscous defined on inner side by white, forming a diffused fuscous spot at costa, oblique, sinuous ; reniform fuscous with whitish lunule in centre and four small fuscous spots on its outer edge, a dark bar above it from costa ; an oblique elliptical white spot irrorated with brown and defined by blackish below end of cell ; postmedial line black, bent outwards below costa, then somewhat oblique and slightly sinuous to above vein 5, then dentate and strongly angled inwards at vein 1 ; subterminal line bluish white slightly defined on outer side by fuscous, strongly dentate and somewhat oblique from costa to below vein 6 ; a series of blackish points before termen. Hind wing rather pale scarlet, the hair on inner margin brownish, a black medial band oblique from costa to submedian fold, then slightly curved inwards and ending at vein 1, narrow especially below vein 2, its outer edge indented at discal fold ; the terminal area black narrowing to tornus, its inner edge incurved at veins 2 and 1 ; the termen with slight scarlet marks in the interspaces from apex to vein 2, and some white at apex ; cilia white with some blackish at the veins. Underside of fore wing blackish, the costa and termen white irrorated with brown, the latter expanding towards apex, a white patch at base, an oblique white medial patch from below costa to submedian fold, postmedial band

white, oblique to vein 4, slightly angled outwards in submedian fold and narrowing to inner margin; hind wing with the basal costal area white, the postmedial area white to vein 3 and with white streak on vein 2, the medial black band as above, the terminal band leaving some white on termen.

Hab. U.S.A., California, Pasadena, 1 ♂. *Exp.* 80 millim.

7226. *Catocala neglecta*. (Plate CXCVIII. fig. 7.)

Catocala neglecta, Staud. Stett. Ent. Zeit. 1888, p. 56; id. Cat. Lep. pal. p. 247.

♂. Head and thorax ochreous whitish irrorated with fuscous; antennæ brown; palpi white at base; frons with lateral black bars; pectus white; tarsi blackish with pale rings; abdomen whitish tinged with ochreous brown, the ventral surface white. Fore wing whitish tinged with ochreous brown and irrorated with fuscous; subbasal line black, sinuous, from costa to submedian fold; antemedial line blackish, rather strong, oblique and sinuous to submedian fold, then slighter, erect, and angled inwards at vein 1, a broad oblique pale band beyond it from costa to submedian fold, followed by some fuscous suffusion; reniform indistinctly defined by blackish and with its centre defined by blackish, irregular; a pale spot defined by blackish below end of cell connected by an oblique sinus with the postmedial line at vein 2; postmedial line blackish, bent outwards below costa, then oblique to below vein 6, then inwardly oblique and sinuous, angled slightly outwards at submedian fold and inwards below it; subterminal line indistinct, blackish, waved, oblique to below vein 6; a slight oblique dark shade from termen below apex; a series of black striæ before termen and a fine waved black terminal line; cilia with a waved brown line at middle. Hind wing pale scarlet; a narrow black medial band somewhat expanding at middle, oblique to submedian fold, then bent inwards and ending at vein 1, a terminal black band from costa to vein 2 connected by a slight line with a patch at vein 1, the inner edge of the band obliquely curved and angled inwards at vein 2; the termen narrowly white tinged with scarlet at apex and with slight spots in the interspaces between veins 6 and 2; cilia white slightly chequered with brown at veins 6 to 2 and brown towards tornus. Underside of fore wing white, an oblique brown shade from below costa before middle to the obliquely curved black medial band at submedian fold, the terminal area blackish narrowing to tornus and leaving some greyish on termen towards apex; hind wing as above but with the costal area white before the medial band to discal fold and on postmedial area to vein 3, the terminal band almost obsolete towards costa and connected by a narrow band in submedian interspace with the patch on vein 1.

Hab. W. TURKESTAN, Ferghana, Issyk-Kul; E. TURKESTAN, Ili; MONGOLIA, Aksu, 1 ♂. *Exp.* 56 millim.

7227. *Catocala deducta*.

Catocala deducta, Ev. Bull. Mesc. 1843, iii. p. 550, pl. 10. f. 3; Herr.-Schäff. Eur. Schmett., Noct. f. 633; Staud. Cat. Lep. pal. p. 247.

♂. Head and thorax grey-white mixed with pale brown and black; palpi whitish towards base; pectus brownish white; legs irrorated with black, the tarsi banded with black; abdomen whitish dorsally suffused with brown, ventrally tinged with red-brown. Fore wing creamy white tinged in parts with grey and thickly irrorated with fuscous; subbasal line represented by a slight dark striga from costa; antemedial line double, olive-brown filled in with whitish, the inner line indistinct, oblique, sinuous; reniform defined by olive-brown and with dark bar in centre, an oblique dark bar above it from costa; a pale spot defined by olive-brown below end of cell; a slight olive line excurved beyond the cell and below vein 2 forming a band on the inner side of the postmedial line, which is olive-brown defined on outer side by whitish, bent outwards below costa, then dentate, angled outwards above vein 5 and inwards at veins 2 and 1; subterminal line whitish defined on each side by brown, dentate, somewhat oblique from costa to below vein 7; a series of dark striæ before termen; cilia with a red-brown line through them. Hind wing pale scarlet, the hair on inner margin brownish white; a black medial band, oblique to submedian fold, then bent inwards and ending at vein 1, its edges sinuous; terminal area black, narrowing to tornus, its inner edge angled inwards at veins 2 and 1 and excurved at submedian fold; termen to vein 2 and cilia creamy white mixed with blackish. Underside of fore wing white, an oblique diffused black band from below costa before middle to the oblique black medial band with sinuous edges at inner area, a curved black subterminal band except towards tornus, the apical area brownish white; hind wing as above but the basal costal area to median nervure and the postmedial area to vein 4 white, then with white streaks on the veins.

Ab. 1. Head, thorax, and fore wing white without any ochreous brown tones and hardly any fuscous irroration.—Urals.

Hab. RUSSIA, Urals, 1 ♂; W. SIBERIA, Altai, 1 ♂. *Exp.* 84 millim.

7228. *Catocala afghana*.

Catocala afghana, Swinh. Trans. Ent. Soc. 1885, p. 352, pl. 9. f. 8; Hmps. Moths Ind. ii. p. 441.

♂. Head and thorax grey mixed with brown and fuscous; pectus white; tarsi black ringed with white; abdomen grey tinged with reddish brown, the ventral surface white. Fore wing grey tinged with ochreous brown and irrorated with fuscous; subbasal line indistinct, blackish, excurved below costa and ending at submedian fold; antemedial line double, filled in with pale grey, the outer line strong, black, oblique, waved; reniform obscurely

defined by blackish, an oblique blackish bar above it from costa and some dark suffusion beyond and below it; a small pale spot defined by blackish below end of cell, with a sinuous line from it to inner margin; postmedial line black, slightly defined on outer side by whitish, bent outwards below costa, then obliquely downcurved, angled outwards above vein 5, then inwardly oblique and waved; subterminal line very indistinct, greyish defined on outer side by blackish, dentate, oblique from costa to below vein 7; a series of black striæ before termen. Hind wing scarlet, the hair on inner margin brownish; a narrow black medial band, oblique from costa to submedian fold, then bent inwards to vein 1, somewhat dilated below costa and at middle; terminal area black, narrowing to tornus, its inner edge incurved at veins 2 and 1 and excurved at submedian fold; the termen with slight reddish marks from apex to vein 2; cilia white, chequered with fuscous between veins 6 and 2, fuscous towards tornus. Underside of fore wing white, an oblique blackish shade from costa before middle to the obliquely curved black medial band with sinuous edges at submedian fold, terminal area black, its inner edge curved and slightly angled outwards at submedian fold, the apex whitish; hind wing as above, but the basal costal area and postmedial area to vein 6, the median nervure and veins rising from it white.

Ab. 1. Head, thorax, and fore wing grey-fuscous with hardly a trace of brown and much more strongly irrorated with black.—Kashmir.

Hab. KASHMIR, 1 ♂, Rajaori (*Leech*), 1 ♂; BELOOCHISTAN, Gwal (*Swinhoe*), 1 ♂ type. *Exp.* 82-86 millim.

7229. *Catocala fusciniupta*, n. sp. (Plate CXCVIII, fig. 8.)

Head and thorax grey mixed with brown and fuscous; pectus whitish; tarsi black ringed with white; abdomen grey tinged with red-brown, the ventral surface white. Fore wing grey tinged in parts with red-brown and irrorated with fuscous; subbasal line indistinct, dark, sinuous, from costa to submedian fold; antemedial line indistinct, double, filled in with white at inner margin, oblique, sinuous; reniform obscurely defined by red-brown, an oblique dark bar above it from costa and some dark suffusion beyond and below it; a small whitish spot defined by fuscous below end of cell with a sinuous dark shade from it to inner margin; postmedial line dark, defined on outer side by whitish on inner half, bent outwards below costa, then obliquely downcurved, angled outwards above vein 5, then inwardly oblique and dentate, a rufous shade beyond it except on inner area; subterminal line indistinct, grey defined on outer side by fuscous, dentate, oblique from costa to below vein 7; a series of blackish striæ before termen; cilia brown and whitish with a slight dark line through them. Hind wing scarlet, the hair on inner margin brownish; a black medial band, oblique from costa to submedian fold, then bent inwards to vein 1 where it terminates,

its edges sinuous; terminal area black, narrowing to tornus, its inner edge angled inwards at veins 2 and 1 and excurved at submedian fold; the termen with a white patch at apex, then a series of small spots in the interspaces to vein 2; cilia white, chequered with fuscous between veins 6 and 2, fuscous towards tornus. Underside of fore wing white, an oblique black-brown shade from costa before middle, to the oblique black medial band at submedian fold, the outer edge of the band excurved at vein 5, the terminal area black, its inner edge sinuous towards tornus, some whitish at apex; hind wing as above, but the basal costal area and the postmedial area to discal fold white.

Hab. KASHMIR, Zalmiur Pass (*MacArthur*), 1 ♀; PUNJAB, Kulu, Sultanpur (*G. Young*), 1 ♂, Dharmsala (*Hocking*), 4 ♂, 2 ♀ type, Simla, 1 ♀, Kasauli, 1 ♂, Abbotabad (*Yerbury*), 1 ♂; ? SIKHIM, 1 ♂. *Exp.* 90–96 millim.

7230. *Catocala prolifica*.

Catocala prolifica, Wlk. xiii. 1211 (1857); Butl. Ill. Het. B.M. vi. p. 38, pl. 110. f. 9; Hmps. Moths Ind. ii. p. 441.

Head and thorax grey mixed with brown and fuscous; palpi at base and pectus brownish white; tarsi blackish ringed with white; abdomen grey tinged with red-brown, the ventral surface brownish white. Fore wing grey irrorated and mostly suffused with fuscous black, the basal half of medial area greyer; antemedial line double filled in with grey and with whitish at inner margin, oblique, sinuous; reniform defined by blackish and with black lunule in centre, some whitish before it in the cell; a small whitish spot defined by blackish below end of cell; a grey patch below costa before the postmedial line, which is very indistinct and slightly defined on outer side by grey, bent outwards below costa, then obliquely incurved to above vein 5, then inwardly oblique and waved; subterminal line grey, defined on outer side by blackish, dentate, oblique from costa to below vein 6; a series of minute blackish spots before termen. Hind wing scarlet, the hair on inner margin brownish and some brownish hair in base of submedian fold; a black median band, oblique to submedian fold, then bent inwards to just above inner margin, its outer edge excurved below costa and at vein 5; terminal area black, narrowing to tornus, its inner edge sinuous, angled inwards at vein 2 and excurved at submedian fold; the termen with series of small white spots in the interspaces from apex to vein 2; cilia white, chequered with brown between veins 6 and 2, brown at base towards tornus. Underside of fore wing white, an oblique brown shade from costa before middle to vein 1, an oblique black medial band, its outer edge excurved at vein 5, the terminal area black, its inner edge curved and slightly waved, some whitish at apex; hind wing as above, but the basal costal area and the postmedial area to discal fold white.

Hüb. KASHMIR, Zalmiur Pass (*MacArthur*), 1 ♂; PUNJAB (*Mrs. Manger*), 1 ♀ type, Kulu, Sultanpur (*G. Young*), 2 ♀. *Exp.* 88-90 millim.

7231, *Catocala puerpera*.

- Chrysis puerpera*, Giorna, Cat. Ent. Torino, p. 142 (1791); Mill. Icones, i. p. 261, pl. 20, ff. 1-3 Staud, Cat. Lep. pal. p. 247.
Noctua amasia, Esp. Scamett. iv. pl. 194, ff. 1, 2 (1796).
Noctua peltex, Hübn. Eur. Schmett., Noct. ff. 435. 605 (1808).
Catocala orientalis, Staud. Stett. Ent. Zeit. 1877, p. 202.
Catocala pudica, Moore, 2nd Yarkand Mission, Lep. p. 12 (1879); Hmps., Moths Ind. iv. p. 531.
Catocala rosea, Aust. Le Nat. 1884, p. 391.
Catocala pallida, Alph. Rom. Mém. iii. p. 406 (1887).
Catocala genatrix, Schultz, Ent. Zeit. Guben. xx. p. 95 (1906).
Catocala syriaca, Schultz, Ent. Zeit. xxii. p. 169 (1909).
Catocala tarbagata, Schultz, Ent. Zeit. xxii. p. 169 (1909).
Catocala romana, Schultz, Ent. Zeit. xxii. p. 169 (1909).
Catocala fecunda, Schultz, Ent. Zeit. xxii. p. 169 (1909).
Catocala brunnescens, Schultz, Ent. Zeit. xxii. p. 169 (1909).
Catocala senescens, Schultz, Ent. Zeit. xxii. p. 169 (1909).
Catocala demaculata, Schultz, Ent. Zeit. xxii. p. 169 (1909).

Head and thorax pale grey tinged and irrorated with brown; palpi whitish, tinged with brown and irrorated with black towards tips; frons irrorated with black; pectus white; tarsi black ringed with white; abdomen pale grey tinged with rufous, the ventral surface white. Fore wing pale grey slightly tinged with red-brown and irrorated with brown; an oblique subbasal blackish striga from costa; antemedial line double, the inner line indistinct, slightly angled outwards below costa, then oblique, sinuous; reniform defined by fuscous and with some fuscous in centre, a dark bar above it from costa; a spot faintly defined by brown below end of cell; postmedial line blackish, bent outwards below costa, then obliquely incurved, angled outwards above vein 5, then inwardly oblique and minutely dentate; a very faint dark slightly waved subterminal line, oblique from costa to below vein 6; a series of blackish points before termen; cilia with a blackish line through them. Hind wing scarlet, the hair on inner margin white, a narrow obliquely curved black medial band from costa to vein 1, expanding into a spot beyond lower angle of cell; a black terminal band from apex to just below vein 2 and a spot at vein 1; the termen with a pale red patch at apex, then with slight spots in the interspaces to vein 2; cilia white with slight dark marks at veins 6 and 2. Underside of fore wing white, an oblique fuscous brown shade from costa before middle to the obliquely curved medial black band narrowing to inner margin and with its outer edge incurved below vein 6, at submedian fold, a curved black subterminal band, the termen brownish white; hind wing as above, but white with the inner area suffused with scarlet.

Ab. 1. *genatrix*. Hind wing with the terminal band not interrupted at submedian fold.

Ab. 2. *romana*. Hind wing yellowish red.—Roman Campagna.

Ab. 3. *orientalis*. Smaller; fore wing suffused with fuscous.—S. Russia, W. Siberia.

Ab. 4. *syriaca*. Larger; fore wing rather dark.—Beirut.

Ab. 5. *pubica*. Larger and paler; fore wing with an ochreous brown tinge; hind wing yellowish red.—W. and E. Turkestan; Ladak.

Ab. 6. *rosea*. Fore wing grey with a pinkish tinge.—Algeria.

Hab. S. FRANCE, Pyrenees; AUSTRIA, Mutzell Coll., Tirol; HUNGARY, D'Emmich Coll.; SWITZERLAND, Valais, Frey Coll.; SPAIN, Andalusia, Leech Coll.; ITALY, Lago di Garda (*A. H. Jones*), Rome; ALGERIA; DALMATIA; S. RUSSIA, D'Emmich Coll.; ARMENIA; ASIA MINOR, Pontus, Bithynia; SYRIA, Beirut, 1 ♂, 1 ♀, Zeller Coll.; PERSIA, Urumiah (*Daltry*), 1 ♂; W. TURKESTAN, Merv (*Hauser*), 1 ♂, Turcomania, Sarawschan, Ferghana, Tarbagatai Mts., Issyk-Kul; W. SIBERIA, Altai; E. TURKESTAN, Ili, 5 ♂, 1 ♀, Korla, Lob-noor; KASHMIR, Ladak, Paskyam (*Shaw*), 1 ♂ type *pubica*. *Exp.* 56–74 millim.

Larva. Kirby, Butt. & Moths Eur. p. 277; Hffm. Raup. p. 149, pl. 37. f. 12.

Yellowish mottled with red-brown, the ventral surface yellowish; warts small; 8th and 11th somites without prominences; head red-brown mottled with yellow. Food-plants: *Salix helix* and *Populus*. 6–7.

*7232. *Catocala aspasia*. (Plate CXCVIII. fig. 9.)

Catocala aspasia, Streck. Lep. Rhop & Het. p. 94 (1874); Smith, Cat. Noct. N. Am. p. 345.

♂. Head and thorax rufous mixed with greyish and black; antennæ black; pectus whitish; legs reddish brown mixed with some black, the tarsi banded black and whitish; abdomen grey tinged with reddish ochreous, the ventral surface white tinged with reddish. Fore wing bluish grey mixed with pale rufous and thickly irrorated with black; a curved subbasal black striga from costa; antemedial line blackish defined on inner side by rufous, oblique, sinuous, somewhat dilated at costa; reniform obscurely defined by black and with some black in upper and lower parts of centre, its outer edge somewhat dentate, some diffused black above it on costa; a pale rufous spot very indistinctly defined by black below end of cell; postmedial line indistinct, blackish, bent outwards below costa, then obliquely downcurved to below vein 6, then inwardly oblique and waved, incurved at vein 1; subterminal line diffused, whitish tinged with rufous and defined on each side by grey, oblique to vein 7, then waved; a series of black striæ before termen; cilia with a slight waved dark line through them. Hind wing pale scarlet; a rather narrow black medial band, oblique to below vein 2, then bent inwards and ending above vein 1, its outer edge slightly angled outwards at vein 5; a black terminal

band narrowing to near tornus where it terminates, its inner edge slightly waved and angled inwards at veins 2 and 1; the termen white, tinged with red towards apex and with small spots in the interspaces between veins 6 and 2; cilia white intersected with blackish at veins 6 to 2 and blackish towards tornus. Underside of fore wing white with oblique black shade from costa before middle to submedian fold where it joins the oblique black post-medial band, its outer edge excurved at vein 5, a broad curved black terminal band leaving the apical area white with some black points on termen; hind wing with the costal area white.

Hab. U.S.A., Utah, Vineyard (*Spalding*), in Coll. W. Barnes, Colorado. *Exp.* 76 millim.

*7233. *Catocala lesbia*.

Catocala lesbia, Christ. Stett. Ent. Zeit. 1887, p. 165; id. Roum. Mém. v. p. 44, pl. 3. ff. 2, a, b; Staud. Cat. Lep. pal. p. 247.

♀. Head and thorax bright rufous mixed with reddish grey; a dark bar between antennæ; palpi grey irrorated with fuscous; pectus and legs grey irrorated with fuscous, the tarsi banded with black, abdomen fulvous yellow, the ventral surface white with black segmental lines. Fore wing reddish grey thickly irrorated and in parts suffused with bright rufous; subbasal line rufous, curved, with spot at costa, then slight and ending at submedian fold; antemedial line double, rufous, oblique, sinuous, the outer line dilated at costa; reniform defined by rufous and with rufous bar in centre; medial line rufous, oblique to the reniform and sinuous below the cell; postmedial line rufous defined on outer side by greyish, bent outwards below costa, oblique to vein 5, then inwardly oblique and waved; postmedial area suffused with rufous; subterminal line grey defined on outer side by brown, waved, oblique from costa to vein 7; a series of dark striæ before termen with slight pale streaks before and beyond them in the interspaces; cilia whitish at tips. Hind wing flesh-red with a yellow tinge; medial band black, oblique to submedian fold, then bent inwards and ending at vein 1, somewhat constricted at discal fold and its outer edge angled outwards at vein 1; a black subterminal band from costa to vein 2 connected by a slight line with a spot at vein 1, the inner edge of the band curved and sinuous, its outer edge angled outwards below costa and excurved to termen at veins 6 and 2; cilia whitish with some fuscous at base at veins 6 and 2. Underside pale yellow; fore wing with oblique blackish antemedial shade from costa to submedian fold, oblique black medial band with sinuous edges and curved subterminal band; hind wing with the inner area orange-yellow, the medial band as above, the sub-terminal band narrower and more strongly connected with the spot at vein 1.

Hab. PALESTINE, Jordan Valley, in Coll. Püngeler; W. TURKESTAN, Turcomania. *Exp.* 90 millim.

7234. *Catocala junctura*. (Plate CXCVIII. fig. 10.)

Catocala junctura, Wlk. xiii. 1196 (1857); Pruce, Biol. Centr.-Am., Het. ii. p. 511, pl. 97. f. 1; Smith, Cat. Noct. N. Am. p. 345.

Catocala walshii, W. H. Edw. Proc. Ent. Soc. Phil. ii. p. 509 (1864).

Catocala arizonæ, Grote, Can. Ent. v. p. 163 (1873).

Catocala texanæ, French, Can. Ent. xxxiv. p. 98 (1902); Dyar, Cat. Lep. N. Am. p. 226.

Head and thorax grey mixed with black and some brown; palpi with some white at base; frons with lateral black bars; tegulæ with black medial line, the prothorax with blackish line; pectus brownish grey; tarsi black ringed with white, abdomen grey tinged with reddish brown, the ventral surface whitish. Fore wing grey slightly tinged with red-brown and thickly irrorated with black; subbasal line black, excurved below costa and ending at submedian fold; antemedial line double, black filled in with white at inner margin, oblique, sinuous; reniform obscurely defined by black, suffused with blackish and with black suffusion beyond it, a black bar above it from costa; a reddish-brown spot defined by blackish below end of cell, a sinuous black line from it to inner margin; postmedial line blackish slightly defined on outer side by grey, bent outwards below costa, then obliquely incurved, angled outwards above vein 5, then inwardly oblique and dentate; subterminal line grey-white defined on each side by fuscous, dentate, somewhat oblique from costa to below vein 7; a series of black striæ before termen; cilia with a slight dark line through them, whitish at tips. Hind wing scarlet, the hair on inner margin brownish; a black medial band, obliquely curved to submedian fold, then bent inwards and ending near inner margin, its outer edge slightly excurved at vein 5; terminal area black, narrowing to tornus, its inner edge angled inwards at veins 2 and 1 and excurved at submedian fold; termen narrowly white towards apex and slightly tinged with red on inner side, then with slight white spots in the interspaces to vein 2; cilia white with some fuscous at base, wholly fuscous towards tornus. Underside of fore wing white, the base tinged with brown, an oblique blackish shade from costa before middle to the oblique black medial band with its outer edge excurved at vein 5 at inner area, terminal area black, its inner edge curved and slightly waved, the costa and termen towards apex grey-white; hind wing as above but the basal costal area pale brownish, the postmedial area white to vein 5, the medial band not extending below vein 1.

Ab. 1. *walshii*. Fore wing without the dark shade from costa to lower angle of cell.—S. Illinois, Kansas, Texas.

Ab. 2. *arizonæ*. Fore wing slightly darker and with less brown, the lines somewhat more distinct.—Arizona.

Ab. 3. Fore wing more variegated with white especially on costal half of inner area and on postmedial and terminal areas except towards inner margin.—Arizona.

Ab. 4. Fore wing with the basal area and the inner area to subterminal line suffused with fuscous black.—Arizona.

Ab. 5. Fore wing wholly suffused with black to the subterminal line.—Arizona.

Ab. 6. Fore wing without fuscous shading; hind wing with the band slightly narrower.—Mexico.

Hab. U.S.A., ? New York (*Doubleday*), 1 ♂ type, Kansas, Douglas Co. (*Snow*), 3 ♂, 2 ♀, Texas (*Belfrage*), 1 ♀, Shovel Mts., 1 ♀, Arizona, Phoenix (*Kunzé*), 7 ♂, 1 ♀, Huachuca Mts., 1 ♀; Mexico, Durango (*Becker*), 1 ♂, Godman-Salvin Coll. *Exp.* 78–94 millim.

7235. *Catocala babayaga*. (Plate CXCIX. fig. 1.)

Catocala babayaga, Streck. Papilio, iv. p. 73 (1884); Smith, Cat. Noct. N. Am. p. 346.

Head and thorax red-brown; palpi with some whitish at base; tegulæ with slight blackish medial line and blackish tips; patagia with some blackish scales near upper edge; pectus brownish white; tarsi black ringed with white; abdomen pale rufous, the ventral surface white tinged with rufous. Fore wing red-brown mixed with some grey and irrorated with black; a subbasal blackish striga from costa; antemedial line double, brown, oblique, waved; reniform defined by blackish and with its centre defined by blackish, its outer edge somewhat dentate, a dark bar above it from costa; a pale irregular spot incompletely defined by blackish below end of cell; postmedial line blackish, bent outwards below costa, then oblique and minutely dentate, angled outwards above vein 5, then inwardly oblique and dentate, strongly incurved at vein 1; subterminal line grey-white defined on outer side by blackish, dentate, oblique from costa to below vein 7; a series of black striæ before termen; cilia with a slight dark line through them. Hind wing bright scarlet, the bar on inner margin brownish; a black medial band, obliquely excurved to submedian fold, then bent inwards and ending at vein 1, its outer edge excurved at vein 5; terminal area black, narrowing to tornus, its inner edge incurved at veins 2 and 1 and excurved at submedian fold; the termen narrowly white towards apex tinged with red on inner side, then with series of spots in the interspaces to vein 2; cilia white with slight fuscous line through them, wholly fuscous towards tornus. Underside of fore wing white, the base tinged with rufous, an oblique black-brown shade from costa before middle to the obliquely curved black medial band at inner area, terminal area black, its inner edge curved, slightly angled outwards at submedian fold, the termen brownish white towards apex; hind wing as above but the basal costal area and the postmedial area to vein 5 white tinged with rufous.

Hab. U.S.A., Arizona, 1 ♂, Grote Coll., Chiricahua Mts., 1 ♀. *Exp.* 80–90 millim.

Larva. Food-plant, Willow.

7236. *Catocala remissa*. (Plate CXCIX. fig. 3.)

Catocala remissa, Staud. Iris, iv. p. 328, pl. 4. f. 10 (1891); id. Cat. Lep. pal. p. 247.

Head and thorax pale red-brown tinged with grey; palpi whitish towards base; frons with lateral blackish bars; tegulæ with slight dark line at tips, the prothorax with slight dark line; pectus creamy white; legs pale brownish, the tarsi banded with fuscous, abdomen pale reddish brown, the ventral surface brownish white. Fore wing pale red-brown suffused with grey; subbasal line blackish, sinuous from costa to submedian fold in which there is a very slight dark streak extending to the antemedial line, which is double, brown, dentate towards costa, then oblique, waved and angled inwards on vein 1; reniform defined by brown and with its centre defined by brown, its outer edge somewhat dentate and its inner edge produced to a point on subcostal nervure, an oblique dark shade above it from costa; a spot defined by blackish below end of cell, connected by a sinus with the postmedial line at vein 2; postmedial line blackish defined on outer side by grey, bent outwards below costa, then obliquely downcurved, acutely angled outwards above and below vein 5, then oblique, minutely dentate, strongly angled outwards at submedian fold and inwards on vein 1; subterminal line grey defined on outer side by brown and with brown suffusion before it, dentate, oblique from costa to below vein 6; a slight oblique dark shade from termen below apex; the veins of terminal area finely streaked with black; a series of blackish striæ before termen. Hind wing pale scarlet; a narrow black medial band, oblique to submedian fold, then bent inwards and ending at vein 1, its outer edge angled outwards below costa and at vein 5; terminal area black, narrowing to tornus, its inner edge angled inwards at veins 2 and 1 and excurved at submedian fold; the termen narrowly ochreous white towards apex, then with series of small spots in the interspaces to vein 2; cilia ochreous white with slight dark marks at extremities of veins 6 and 2. Underside of fore wing brownish white, a diffused oblique black band from below costa before middle to the oblique black medial band with sinuous edges at inner margin; a curved black subterminal band; hind wing as above, but the basal costal area to discal fold and the postmedial area to vein 5 brownish white.

Hab. W. TURKESTAN, Turcomania, Issyk-Kul, 1 ♂, 1 ♀; E. TURKESTAN, Kashgar. *Exp.*, ♂ 72, ♀ 80 millim.

7237. *Catocala ilia*. (Plate CXCIX. fig. 5.)

Phalæna ilia, Cram. Pap. Exot. i. p. 53, pl. 33. ff. B, C (1779); Smith,

Cat. Noct. N. Am. p. 339.

Catocala uxor, Guen. Noct. iii. p. 92 (1852).

Catocala zoe, Behr, Trans. Am. Ent. Soc. iii. p. 24 (1870).

Catocala obsoleta, Worthington, Papilio, iii. p. 40 (1883).

Catocala duplicata, Worthington, Papilio, iii. p. 40 (1883).

Catocala conspicua, Worthington, Papilio, iii. p. 40 (1883).

Catocala umbrosa, Worthington, Papilio, iii. p. 41 (1883).

Catocala decorata, Worthington, Papilio, iii. p. 41 (1883).

Catocala osculata, Hulst, Bull. Brooklyn Ent. Soc. vii. p. 43 (1884).

Head and thorax red-brown mixed with whitish; palpi dark brown and white; the tegulæ with blackish medial line, the patagia irrorated with black; pectus brownish white; legs white irrorated with black, the tarsi black ringed with white; abdomen red-brown, the ventral surface brownish white. Fore wing red-brown mixed with white and blackish; subbasal line black, sinuous, from costa to submedian fold, where there is a black mark beyond it and a streak to the antemedial line, which is double, blackish, waved and almost erect; reniform with some white in centre defined by red-brown, and white annulus defined by blackish, its outer edge slightly dentate, an oblique dark bar above it from costa; a small dark spot below end of cell with a line from it bent outwards, then erect; postmedial line black slightly defined on outer side by white, bent outwards below costa, then oblique, acutely angled outwards above and below vein 5, then inwardly oblique, dentate, and angled inwards at vein 1; subterminal line whitish defined on outer side by fuscous, dentate, oblique from costa to below vein 6; an oblique dark shade from termen below apex; a series of black striæ before termen with minute white spots on their outer side. Hind wing orange-red, the inner area clothed with brown hair; a black medial band, oblique to submedian fold, then bent inwards to inner margin, expanding towards costa and into a patch beyond lower angle of cell; terminal area black, very broadly towards costa and narrowing to tornus, its inner edge angled inwards at veins 2 and 1 and excurved at submedian fold; the termen narrowly white tinged with orange towards apex, then with series of small spots in the interspaces to vein 2; cilia white, chequered with fuscous between veins 6 and 2, then almost wholly fuscous. Underside of fore wing with the base whitish, an oblique black-brown shade from costa before middle to vein 1, followed by an orange band before the obliquely curved medial black band narrowing to inner margin and with its outer edge excurved at vein 5, then a yellowish white band, a curved black subterminal band, the termen brownish grey; hind wing as above but the basal costal area white tinged with fulvous yellow, the postmedial area to discal fold white slightly tinged with yellow.

Ab. 1. Fore wing with the reniform filled in with white.

Ab. 2. *uxor*. Fore wing browner and with less white.

Ab. 3. *zoe*. Hind wing. paler orange-yellow.—Washington, California.

Hab. CANADA; U.S.A., throughout, New York (*Grote, Hulst*), 6 ♂, 1 ♀, Ohio, Columbus, 1 ♀, Washington, 1 ♀, California, 2 ♂, Mohave Distr., 1 ♀, Arizona; ? JAMAICA. *Exp.* 80–90 millim.

Larva. Koebele, Bull. Brooklyn Ent. Soc. iv. p. 22; Caulfield, Can. Ent. vii. p. 208; French, Can. Ent. xvi. p. 12.

Greenish grey to dirty brown with numerous striations and lines, sometimes pinkish in front; piliferous warts prominent; 8th somite without prominence; 11th somite with the prominences variable; head bilobed, greenish grey to brown. Food-plant, Oak.

7238. *Catocala lara.*

Catocala lara, Brem. Lep. Ost-Sib. p. 59, pl. 4. f. 13 (1864); Stand. Cat. Lep. pal. p. 247.

Head and thorax brown mixed with grey, the tegulæ pale red-brown and grey; palpi whitish at base; pectus brownish white; tarsi black ringed with white; abdomen red-brown tinged with grey, the ventral surface ochreous white. Fore wing dark brown mixed with grey; a slight oblique subbasal black striga from costa; antemedial line slightly defined on inner side by whitish, strong, black, very oblique and sinuous from costa to submedian fold where it is conjoined by a black streak to the postmedial line, then slight and angled inwards at vein 1, a whitish shade beyond it from costa to below the cell, followed by a dark shade to beyond the cell; reniform brown with whitish annulus; a whitish spot defined by blackish below end of cell; postmedial line black slightly defined on outer side by whitish, bent outwards below costa, then oblique and with some pale suffusion before it, acutely angled outwards above and below vein 5, then incurved, waved, strongly excurved at submedian fold and angled inwards at vein 1; subterminal line indistinct, whitish slightly defined on outer side by brown, obliquely incurved from costa to below vein 7, then waved and slightly angled outwards at submedian fold; the veins of terminal area streaked with blackish; a series of black striæ faintly defined on outer side by whitish and a faint oblique dark shade from termen below apex. Hind wing fuscous brown, the basal and inner areas rather paler brown; a curved yellowish white postmedial band from costa to vein 1 with slight brown streaks on the veins; the termen yellowish white towards apex; cilia yellowish white, chequered with brown between veins 6 and 2, brown towards tornus. Underside of fore wing yellowish white, an oblique brown shade from costa before middle to vein 1, an oblique black medial band, narrowing to inner margin, terminal area black shading to grey at termen, its inner edge curved; hind wing yellowish white, a rather narrow curved black-brown medial band from costa to vein 1, a broad curved black-brown subterminal band extending to termen between veins 6 and 5.

Hab. E. SIBERIA, Amurland (*Diekmann*), 1 ♂, 1 ♀; JAPAN, Yezo (*Pryer*), 2 ♂, 1 ♀, Tokio (*Fenton*), 1 ♀; COREA; N. CHINA, Wei-hai-Wei (*de la Garde*), 1 ♂. *Exp.* 78-100 millim.

7339. *Catocala cerogama*. (Plate CXCIX. fig. 8.)

Catocala cerogama, Guen. Noct. iii. p. 96 (1852); Streck. Lep. Rhop. & Het. p. 22, pl. iii. f. 10; Smith, Cat. Noct. N. Am. p. 337.

Catocala bunkeri, Grote, Can. Ent. viii. p. 230 (1876).

Catocala aurella, Fischer, Can. Ent. xvii. p. 133 (1885).

Catocala eliza, Fischer, Can. Ent. xvii. p. 134 (1885).

Head and thorax white mixed with pale rufous; palpi whitish at base and in front; tegulae with two faint rufous lines, the prothorax with faint rufous line; fore tarsi blackish ringed with white; abdomen pale rufous, the ventral surface whitish. Fore wing grey-white mixed with rufous; subbasal line blackish, waved, from costa to submedian fold, a slight black streak beyond it above vein 1; antemedial line blackish slightly defined on inner side by white towards costa and inner margin, very oblique and slightly sinuous from costa to submedian fold, then sinuous and erect, an oblique white band beyond it from costa to below the cell; reniform faintly defined by red-brown and with some red-brown in centre, an oblique red-brown shade above it from costa; a rather triangular white spot defined by blackish below end of cell; postmedial line black slightly defined on outer side by whitish, bent outwards below costa, then oblique and sinuous, acutely angled outwards above and below vein 5, then inwardly oblique and dentate; subterminal line grey slightly defined on each side by brown, waved, oblique from costa to below vein 6; the veins of terminal area slightly streaked with blackish except on the paler apical area; a series of blackish striae before termen with slight whitish marks beyond them. Hind wing with the basal area rufous, extending on inner area to the curved orange-yellow postmedial band, the rest of wing black-brown; the termen narrowly yellow; cilia creamy white intersected with brown at veins 6 and 2. Underside of fore wing yellowish white, an oblique irregular black-brown shade from below costa before middle to vein 1, a curved black medial band narrowing to inner margin, a curved black subterminal band, the termen brownish grey; hind wing yellow, a curved black medial band from costa to vein 1, a curved black subterminal band.

Ab. 1. *bunceri*. Fore wing suffused with brown to beyond the postmedial line; hind wing with the basal area browner, the yellow band narrower and more maculate.

Hab. CANADA, Toronto (*Gibson*), 1 ♀, Ottawa (*Fletcher*), 1 ♀, Ontario, Orillia (*Bush*), 1 ♀; U.S.A., Eastern, Middle, and Central States, New York (*Grote*), 4 ♂, 3 ♀, Maryland. *Ecp.* 76-90 millim.

Larva. Dyar, Can. Ent. xxvi. p. 21.

Ash-grey with many longitudinal series of black points; 1st somite spotted with black; a sublateral series of white fringe-like processes; ventral surface yellowish green; 11th somite with two black prominences; head grey with black markings. Food-plant, *Tilia americana*.

7240. *Catocala ixion*.

Catocala ixion, Druce, Biol. Centr.-Am., Het. i. p. 360, pl. 31. f. 2 (1890).

♂. Head and thorax red-brown mixed with grey; frons with lateral black bars; tegulæ with black medial line; patagia with black streaks near edges; pectus whitish tinged with brown; legs brown and grey, the tarsi blackish ringed with whitish; abdomen pale red-brown slightly irrorated with fuscous, the ventral surface whitish suffused with red-brown. Fore wing dark red-brown mixed with purplish grey and irrorated with black-brown, the basal area greyer; subbasal line black, excurved below costa and ending at submedian fold; antemedial line double, blackish filled in with grey, the inner line less distinct, oblique, waved; reniform with indistinct greyish annulus incompletely defined by black and with short black streaks beyond it on veins 6, 5, a dark shade above it on costa; a pear-shaped spot with whitish annulus defined by black below end of cell; postmedial line black slightly defined on outer side by whitish, bent outwards below costa, then oblique and sinuous, acutely angled outwards above and below vein 5, then incurved and waved, with black streaks before it above and below vein 1; subterminal line very indistinct, greyish, dentate, oblique from costa to below vein 6 and with black streaks beyond it in the interspaces to the series of black striæ before termen, slightly defined on outer side by fuscous. Hind wing orange-yellow, the inner area suffused with brown; a medial black band, oblique from costa to vein 5, then bent inwards to inner margin, its outer edge excurved at vein 5; the terminal area black, its inner edge irregularly curved; a yellow apical patch, followed by a series of small terminal spots in the interspaces, the cilia beyond them intersected by yellow. Underside of fore wing black-brown, the terminal area with a faint purplish gloss, a yellow patch at base, an oblique yellow medial band from costa to below submedian fold where it is attenuated, an obliquely curved postmedial band, and some grey on apical area; hind wing as above but the postmedial area yellowish white from costa to vein 7 and the apical patch yellowish white.

Hab. MEXICO, Guerrero, Xucumanatlan (*H. H. Smith*), 1 ♂ type, Godman-Salvin Coll. *Exp.* 72 millim.

7241. *Catocala deuteronympha*.

Catocala deuteronympha, Staud. Stett. Ent. Zeit. 1861, p. 290; id. Rom. Mém. vi. p. 586, pl. 12. f. 2 (♀); id. Cat. Lep. pal. p. 249.

Catocala greyi, Staud. Stett. Ent. Zeit. 1888, p. 270; id. Rom. Mém. vi. p. 593, pl. 11. f. 7 (♂); id. Cat. Lep. pal. p. 249.

Head and thorax grey-white mixed with red-brown; palpi with some blackish; frons with black lateral bars; tegulæ with black lines near base, at middle and at tips, the prothorax with blackish bar, the patagia with black lines near edges; pectus brownish white; legs irrorated with brown, the tarsi blackish ringed with

white; abdomen fulvous yellow, the extremity whitish and brown, the ventral surface brownish white. Fore wing with the basal area dark brown, the rest of wing grey-white irrorated and in parts suffused with brown; an oblique subbasal brown bar from costa; antemedial line black defined on inner side by whitish, oblique, sinuous, a broad band of white suffusion beyond it; reniform defined by black and its centre by brown, its outer edge somewhat dentate, an oblique dark bar above it from costa; an oblique elliptical white spot defined by black and with some brown in centre below end of cell; traces of an oblique wavy brown line beyond the cell from vein 6 to inner margin; post-medial line black slightly defined on outer side by whitish, bent outwards below costa, then obliquely downcurved, acutely angled outwards above and below vein 5, then incurved, sinuous, and angled inwards at vein 1, a dark red-brown band beyond it; subterminal line white defined on outer side by black-brown, dentate, obliquely curved from costa to below vein 6 where it is met by an oblique dark shade from termen below apex; the veins of terminal area streaked with blackish; a line formed of black striae defined on outer side by white before termen; cilia brown with a fine whitish line at base. Hind wing golden yellow; diffused brown fasciae in submedian fold and on inner margin from base to the black medial band, which is obliquely curved from costa to submedian fold, then bent inwards and brown to inner margin, expanding on costal area and its outer edge excurved at vein 5; a black subterminal band from costa to submedian fold where it is almost separated from a patch above tornus, its inner edge oblique to vein 4 and incurved at vein 2, its outer edge crenulate to termen and to the tips of cilia at veins 6 to 2. Underside of fore wing yellow, an oblique antemedial brown shade from middle of cell to vein 1, an oblique medial black band narrowing to inner margin, its inner edge incurved below costa and its outer edge excurved at vein 5, terminal area blackish, its inner edge curved and narrowing to tornus, the apex yellowish, cilia chequered brown and white; hind wing as above but without the brown on inner area, a small black discoidal spot conjoined to the medial band which does not reach the inner margin, the terminal area blackish, not interrupted at submedian fold and with some yellow at apex.

Hab. E. SIBERIA, Amurland, 1 ♂, 1 ♀. *Exp.* 66 millim.

7242. *Catocala proxeneta*.

Catocala proxeneta, Alph. Iris, viii. p. 197 (1895); id. Rom. Mém, ix. p. 223, pl. 10. f. 3; Staud. Cat. Lep. pal. p. 248.

Head and thorax grey-white mixed with black-brown; palpi blackish at sides, patagia with black lines near edges; pectus and legs grey-white, the tibiae irrorated with brown, the fore and mid tibiae with black bars near extremities, the tarsi black ringed with whitish; abdomen rufous, the ventral surface white tinged with rufous. Fore wing grey-white irrorated with dark brown, the

basal area suffused with black except towards costa and inner margin; subbasal line black, excurved below costa and ending at submedian fold; antemedial line black, oblique, sinuous, a whitish shade beyond it from costa to below the cell; reniform slightly defined by blackish and its centre by rufous, an oblique dark bar above it from costa; an oblique wedge-shaped whitish spot defined by blackish below end of cell; postmedial line black, bent outwards below costa, then oblique, acutely angled outwards above and below vein 5, then inwardly oblique, waved, excurved at submedian fold and angled inwards at vein 1; subterminal line whitish, waved, oblique from costa to below vein 7; the interspaces of terminal area with slight black streaks ending in a series of striæ before termen. Hind wing golden yellow; a diffused brown fascia in base of submedian fold and the hair on inner margin brown; a blackish discoidal lunule connected with the narrow black medial band, which is obliquely excurved from costa to submedian fold, then bent inwards to near inner margin, its outer edge excurved at vein 5; a terminal black band slightly interrupted at submedian fold, its inner edge incurved at vein 2; the termen yellow towards apex, then with slight yellow marks in the interspaces and black striæ at veins 6 to 2; cilia white. Underside of fore wing pale yellow, an oblique brown antemedial shade from below costa to vein 1, an oblique black medial band, angled outwards at submedian fold, then narrow and bent inwards to inner margin, its inner edge sinuous, a curved fuscous subterminal shade, the termen whitish irrorated with brown; hind wing as above but the costal area and termen whitish irrorated with brown, the discoidal lunule separated from the medial band.

Hab. MONGOLIA, Changhai Mts., 1 ♂, 1 ♀. *Exp.* 50 millim.

*7243. *Catocala obseena*,

Catocala obseena, Alph. Iris, viii. p. 196 (1895); id, Rom. Mém. ix. p. 176, pl. x. f. 2.

Head and thorax brownish grey; abdomen brownish grey tinged with greenish. Fore wing ash-grey slightly tinged with greenish and thickly irrorated with blackish; subbasal line represented by a sinuous black striga from costa; antemedial line with black striga from costa and point at median nervure, then pale and waved; reniform a small brownish lunule defined by dark brown, a blackish striga above it from costa; postmedial line pale with black point at costa, bent outwards below costa, then oblique and with black points on it to vein 6, then inwardly oblique and waved; subterminal line faint, pale, slightly waved to vein 2 and angled outwards in submedian fold; a terminal series of whitish points. Hind wing orange-yellow; some brown suffusion in base of cell; a diffused brown fascia in submedian interspace from base to near the medial black band, which is oblique towards costa, excurved below vein 5, and bent inwards from submedian fold to inner

margin, its outer edge angled outwards at vein 5; a subterminal black band, from costa to just below vein 2, its inner edge excurved at middle and its outer edge produced as diffused streaks to termen at veins 6 and 2; an elliptical black spot on termen at vein 1; cilia tinged with brown at middle. Underside orange-yellow; fore wing with oblique black antemedial shade from cell to inner margin, obliquely curved postmedial black band with sinuous edges, and terminal band narrowing to a point at tornus, its inner edge curved; hind wing as above but without the brown in and below cell, the terminal band diffused to termen and confluent with the patch at vein 1.

Hab. COREA. *Exp.* 86 millim. This species is unknown to me.

7244. *Catocala nymphæoides*.

Catocala nymphæoides, Herr.-Schäff. Schmett. Eur. vi. p. 60 (1856),
Noct. ff. 599, 600; Staud. Cat. Lep. pal. p. 249.

Catocala nymphula, Staud. Rom. Mém. vi. p. 589 (1892).

Head and thorax leaden grey mixed with dark brown; palpi with the base and 2nd joint in front bluish white; pectus and legs white mixed with brown, the tarsi fuscous ringed with whitish; abdomen fulvous brown, the ventral surface white. Fore wing leaden grey suffused with red-brown and irrorated with dark brown; subbasal line brown, sinuous, from costa to submedian fold; antemedial line dark brown, oblique, sinuous; reniform obscurely defined by brown and with some brown suffusion above it on costa; a small spot defined by brown below end of cell, its outer edge indented; postmedial line brown, bent outwards below costa, then oblique, angled outwards above vein 5, then inwardly oblique, dentate, bent inwards at vein 1; subterminal line indistinct, diffused, grey slightly defined on each side by red-brown, minutely dentate, oblique from costa to below vein 7; the terminal area rather browner with a series of blackish points before termen. Hind wing golden yellow; black-brown fasciæ on costal area, in submedian fold, and on inner margin to the medial black band, which is oblique to submedian fold and interrupted at vein 1 and has its outer edge angled outwards at vein 5; a black terminal band from costa to just below vein 2 and a patch at vein 1, the inner edge of the band oblique to vein 4 and incurved at vein 2; the termen with narrow yellow patch at apex, then with slight yellow marks in the interspaces to vein 2; cilia yellowish white, chequered with brown at veins 6 to 2. Underside of fore wing yellow with a brownish fascia on inner area from near base to middle, an obliquely curved black medial band, narrowing at inner margin, its outer edge incurved at discal fold and excurved at vein 5, terminal area blackish, its inner edge curved and minutely waved; hind wing as above but without the dark fasciæ on basal area, the medial band not interrupted at vein 1.

Hab. E. SIBERIA, Amurland, Raddefska, 1 ♂, 1 ♀. *Exp.* 52-54 millim.

7245. *Catocala omphale*. (Plate CXCI. fig. 2.)*Catocala omphale*, Butl. Trans. Ent. Soc. 1881, p. 195.

♂. Head and thorax dark red-brown mixed with some white; palpi whitish towards base; frons with black lateral bars; tegulæ with brown line near tips; pectus brownish white; legs white and brown mixed, the tarsi blackish ringed with white; abdomen red-brown, the ventral surface whitish tinged with brown. Fore wing with the basal area dark red-brown suffused with blackish, the basal part of medial area white irrorated with brown, the terminal area red-brown slightly irrorated with white; subbasal line black, sinuous, from costa to submedian fold, in which there is a black streak beyond it to the antemedial line, which is double, black filled in with whitish, the outer line strong, obliquely curved and slightly sinuous; reniform very faintly defined by brown and with its centre defined by brown, its outer edge somewhat dentate; a white spot defined by black and with some red-brown in centre below end of cell; postmedial line brown towards costa, then black defined on outer side by white towards inner margin, bent outwards below costa, then oblique, excurved above vein 5, then incurved and angled inwards at vein 1; subterminal line very indistinct, whitish slightly defined on outer side by brown, obliquely down-curved from costa to below vein 7, where it is met by an oblique shade from termen, then waved; a series of black striæ before termen slightly defined on outer side by white. Hind wing with the basal and inner areas dark red-brown, some yellow in lower extremity of cell; a black medial band, oblique to submedian fold, then bent inwards to above inner margin, its outer edge angled outwards at vein 5; terminal area black-brown, its inner edge oblique to vein 4, then waved; the termen narrowly yellow towards apex; cilia white towards apex, then yellowish, chequered with brown at veins 6 to 2, brownish towards tornus. Underside of fore wing yellowish white, an oblique brown shade from below costa before middle to vein 1, an obliquely curved black medial band, narrowing to inner margin, its outer edge excurved at vein 5, terminal area black-brown, its inner edge curved, cilia chequered brown and white; hind wing as above but brownish white, the basal and inner areas suffused with brown, the inner edge of terminal band irregular towards costa.

Hab. JAPAN, Yezo (*Pryer*), 5 ♂, Tokio (*Maries*), 1 ♂ type. *Exp.* 62 millim.

7246. *Catocala agitatrix*.*Catocala agitatrix*, Græs. Berl. Ent. Zeit. xxxii. p. 372 (1888); Staud.

Rom. Mém. vi. p. 588, pl. 12. f. 3; id. Cat. Lep. pal. p. 249.

Catocala mabella, Holl. Trans. Am. Ent. Soc. xvi. p. 75 (1889).

Head brown and white with some rufous on vertex, the frons with lateral black bars; tegulæ and a band on prothorax bright rufous, the rest of thorax brown and grey; pectus and legs white,

the latter irrorated with fuscous, the tarsi brown ringed with white; abdomen rufous with some grey at base of sides, the ventral surface white. Fore wing grey-white suffused with iron-brown, the costal area whiter, especially on medial area; subbasal line black, excurved below costa and ending at submedian fold; antemedial line black, oblique and slightly sinuous, angled outwards above inner margin; reniform white with its centre defined by rufous; an irregular spot slightly defined by black below end of cell; postmedial line black slightly defined on outer side by grey, bent outwards below costa, then obliquely incurved, acutely angled outwards above vein 5 and slightly below it, then incurved and waved, somewhat bidentate at submedian fold and angled inwards at vein 1; subterminal line faint, diffused, greyish slightly defined on each side by brown, waved, obliquely incurved from costa to below vein 7; a series of black points before termen defined on outer side by white. Hind wing golden yellow; black-brown fasciæ on costal area, in submedian fold and on inner margin to the black medial band, which is oblique to submedian fold, then bent inwards to inner margin, its outer edge excurved at vein 5; a black subterminal band from costa to just below vein 2, and elliptical patch at vein 1, the inner edge of the band oblique to vein 4 and angled inwards at vein 2, its outer edge crenulate to termen at veins 6 to 2; cilia yellowish white with slight brown marks at veins 6 to 2. Underside of fore wing white, the basal half tinged with yellow, an oblique brown shade from below costa before middle to vein 1, an oblique black medial band, its outer edge excurved at middle, terminal area blackish shading to grey at termen, its inner edge excurved at middle; hind wing as above, but the costal area whitish to discal fold except at the bands, the basal area with obsolescent brown fascia in submedian fold only.

Hind tibiæ with one spine, sometimes absent (? broken off).

Hab. E. SIBERIA, Amurland, Ussuri; JAPAN, Oiwaké (*Pryer*), 2 ♂, 2 ♀, Kiushiu, 1 ♀. *Exp.* 66-70 millim.

7247. *Catocala clintoni*. (Plate CXCI. fig. 4.)

Catocala clintonii, Grote, Proc. Ent. Soc. Phil. iii, p. 89, pl. iii. f. 4 (1865); Streck. Lep. Rhop. & Het. p. 35, pl. v. f. 6; Smith, Cat. Noct. N. Am. p. 335.

Catocala helene, Pilate, Papilio, ii. p. 31 (1882).

♀. Head and thorax white slightly mixed with black-brown; palpi with the 1st and 2nd joints blackish except in front and at extremity of 2nd joint; frons with black band at middle, a blackish angled line between antennæ; tegulæ with blackish band near tips and the tips black, the prothorax with narrow brown band, the patagia with some black scales near upper edge and black streak on outer edge; pectus white; legs irrorated with brown, the fore and mid tibiæ with black streaks towards base and bands towards

extremities, the tarsi black ringed with white; abdomen yellow tinged with rufous, whitish at base, the ventral surface white irrorated with brown. Fore wing white tinged with reddish brown and irrorated with dark brown, the costal area whiter, the veins with blackish streaks on terminal area; an oblique sub-basal black striga from costa; a black streak in submedian fold from base to the antemedial line, which is blackish, angled outwards below costa, then oblique and sinuous; reniform defined by brownish suffusion and with its centre faintly defined by brown, an oblique black striga above it from costa; a faint whitish spot very slightly defined by brown below end of cell; postmedial line blackish, bent outwards below costa, then oblique, very acutely angled outwards above and below vein 5, then incurved and obsolescent, strongly angled outwards at submedian fold, then with oblique black streak on it and strongly angled inwards at vein 1; subterminal line rather diffused, white, slightly waved, dentate above and below vein 5 and at submedian fold, oblique from costa to below vein 6; a crenulate blackish terminal line defining slight white marks on termen. Hind wing golden yellow, the inner area suffused with rufous; a black medial band obliquely curved from costa to submedian fold, then bent inwards and ending at vein 1, its outer edge angled outwards at vein 5; a black terminal band, its inner edge slightly waved and incurved at veins 2 and 1, angled outwards at submedian fold; the termen narrowly yellow towards apex, then with slight yellow marks in the interspaces; cilia white slightly chequered with brown at veins 6 to 2. Underside of fore wing white, the basal half suffused with yellow-brown except at costa which is irrorated with brown, an oblique blackish medial band narrowing to costa, bent inwards and narrowing to inner margin, terminal area blackish, its inner edge excurved at middle, the costa towards apex and termen with some whitish; hind wing as above but the basal costal area and postmedial area to discal fold yellowish white irrorated with brown, a brown streak in end of cell, the apical patch yellowish white irrorated with brown.

Ab. 1. *helene*. Fore wing somewhat darker.

Hab. CANADA; U.S.A., Middle and Central States, New York, Evans Center (*Grote*), 2 ♀, Kansas (*Snow*), 1 ♀, Florida, Texas. *Exp.* 54-60 millim.

7248. *Catocala gracilis*. (Plate CXCIX. fig. 6.)

Catocala gracilis, W. H. Edw. Proc. Ent. Soc. Phil. ii. p. 511 (1864);
Smith, Cat. Noct. N. Am. p. 331.

Catocala sordida, Grote, Can. Ent. ix. p. 170 (1877).

Head and thorax violaceous white mixed with dark brown; palpi white, the 2nd and 3rd joints mostly black; frons with black bar; tegulæ with black band near tips which are white; patagia with

black streak on outer edge; pectus and legs white, the tibiae irrorated with brown, the fore tibiae with black bar near extremities, the tarsi black ringed with white; abdomen pale rufous, the ventral surface white. Fore wing violaceous white irrorated with dark brown; a curved subbasal black striga from costa and short streak below base of cell; antemedial line black, excurved below costa, then oblique and sinuous, angled outwards above inner margin to the postmedial line; reniform narrow, defined by black, an oblique blackish bar above it from costa; postmedial line black, slightly bent outwards below costa, then oblique and angled outwards above vein 5, then inwardly oblique, obsolescent, minutely waved and with minute black streaks on the veins, below submedian fold strong, incurved and ending with the antemedial line above inner margin; subterminal line whitish defined on each side by blackish suffusion, strongly dentate, and oblique from costa to below vein 6; the terminal area with some black-brown suffusion above middle and towards tornus and a series of black streaks in the interspace ending in points before termen. Hind wing orange-yellow; some brown suffusion in basal half of submedian fold; a narrow black medial band, oblique, excurved below vein 5 and ending at vein 1; a broad terminal black band from costa to just below vein 2 and a patch at vein 1, the inner edge of the band oblique to vein 4; the termen narrowly yellow towards apex, then with slight yellow points in the interspaces to vein 2; cilia whitish, chequered with brown at veins 6 to 2. Underside of fore wing with the basal half yellowish, an obliquely curved blackish medial band followed by a yellowish white band, the terminal area blackish, its inner edge curved, some whitish at apex, cilia chequered white and blackish; hind wing as above, but the costal area whitish except at the bands, no brown in submedian interspace, the terminal band connected by a bar on termen with the patch at vein 1.

Ab. 1. Fore wing with the inner area suffused with black-brown except at base.

Ab. 2. *sordida*. Fore wing deeper blue-grey and more suffused with brown, the streak below base of cell absent.

Hab. CANADA; U.S.A., New York, 4 ♂, 3 ♀, Evans Center (*Grote*), 1 ♀, Center (*Bailey*), 2 ♂, 2 ♀, Rhode I., 1 ♀, Middle and Southern States. *Exp.* 42-46 millim.

*7249. *Catocala armandi*. (Plate CXCIX. fig. 12.)

Catocala davidi, Ponj. Bull. Soc. Ent. Fr. (6) vii. p. xxxviii (1887), nec Oberth. 1881.

Catocala armandi, Ponj. Bull. Soc. Ent. Fr. (6) viii. p. ccviii (1888).

♀. Head and thorax brown mixed with grey, tegulae edged with black; abdomen pale brown. Fore wing black-brown irrorated with grey especially at base and apex; subbasal line

black, strongly sinuous, from costa to vein 1, a straighter line just beyond it; antemedial line double, black, oblique, sinuous, defined on outer side by whitish; reniform defined by black and irrorated with whitish, extending to the costa; a large spot below end of cell, defined by black, its centre brown edged by whitish; postmedial line black defined on inner side by a white striga at costa, bent outwards below costa, then obliquely downcurved to below vein 6, then oblique and strongly dentate, defined on outer side by reddish; subterminal line whitish defined on outer side by black, strongly dentate and confluent with the series of black points defined on outer side by whitish before termen; cilia brown intersected by whitish. Hind wing ochreous yellow; the inner area suffused with brown to the medial black band, which is oblique from costa to submedian fold, then bent inwards and ending at vein 1, its outer edge angled outwards at vein 5; terminal area broadly black, its inner edge sinuous, leaving some yellow at apex; cilia yellowish white chequered with brown at veins 6 to 2. Underside pale ochreous yellow; fore wing with oblique brown shade from costa before middle to inner margin where it joins the obliquely curved black postmedial band, terminal area black, broad at costa; hind wing as above.

Hab. TIBET, Moupin (*David*). *Exp.* 74 millim. This species is unknown to me, figured from a drawing from type in Mus. Paris.

***7250. *Catocala abacta*. (Plate CXCIX. fig. 10.)**

Catocala abacta, Staud. *Iris*, xiii. p. 113, pl. vi. f. 5 (1900); id. *Cat. Lep.* pal. p. 249.

♂. Head and thorax red-brown mixed with white and blackish, the vertex of head whitish; abdomen yellow suffused with red-brown. Fore wing grey tinged with ochreous and irrorated with brown, the terminal area browner; a subbasal white striga from costa; antemedial line double, black filled in with whitish, irregularly waved, bent inwards to costa; reniform an obscure brown mark defined on outer side by whitish and confluent with a brown mark on costa; a dark patch beyond lower angle of cell between veins 4 and 2; postmedial line black, slightly bent outwards below costa where it is defined on outer side by white, then oblique to vein 6, then inwardly oblique and dentate, a greyish tinge beyond it before the indistinct dark slightly waved subterminal line; a waved blackish line before termen with yellow spots beyond it in the interspaces; cilia chequered brown and yellow. Hind wing yellow, the inner area slightly tinged with brown; medial band blackish, reduced to a line, oblique to submedian fold, then bent inwards to inner margin; terminal area broadly black-brown; the termen narrowly yellow towards apex, with yellow spots in the interspaces between veins 6 and 2, and with a yellow lunule in submedian interspace; cilia white, brown at base except towards

apex. Underside of fore wing yellow, with obliquely curved postmedial band and the terminal area brown; hind wing as above.

Hab. ASIA MINOR, Taurus Mts. *Exp.* 64 millim. This species is unknown to me, figured from a drawing from type in Coll. Staudinger.

7251. *Catocala nymphagoga*.

Noctua nymphagoga, Esp. Schmett. iv. pl. 105, f. 5 & 105 v. f. 5 (1787);

Hübner. Eur. Schmett., Noct. f. 337; Frr. Neue Beitr. pl. 155. f. 2;

Staud. Cat. Lep. pal. p. 250.

Noctua uxor, Hübner. Beitr. p. 31, pl. 4. f. X (1788).

Catocala tmolia, Led. Ann. Soc. Ent. Belg. ix. p. 67, pl. 3. f. 10 (1865).

Catocala anthracita, Th. Mieg. Le Nat. (2) iii. p. 181 (1889).

Catocala curvifasciata, Schultz, Intern. Ent. Zeit. xx. p. 100 (1906).

Catocala nubilosa, Schultz, Intern. Ent. Zeit. xx. p. 100 (1906).

Head and thorax grey-white mixed with red-brown; palpi white, the 2nd joint irrorated with black, the 3rd black except at tip; frons with lateral black bars; tegulae with diffused dark band near tips; pectus and legs yellowish white, the tibiae irrorated with brown, the fore tibiae with black and white band at extremity, the tarsi black ringed with white; abdomen yellow tinged with rufous, the ventral surface yellowish white. Fore wing grey-white suffused with red-brown, the basal area whiter irrorated with brown; subbasal line represented by black striae from costa and cell; antemedial line black, strong, oblique and slightly sinuous to submedian fold, incurved at vein 1, a slight whitish shade beyond it from costa to median nervure; reniform defined by black, on outer side strongly, a dark bar above it from costa; a spot defined by black below end of cell connected by a sinus on vein 2 with the postmedial line, which is black, rather strong, defined on outer side by white at costa, bent outwards below costa, then oblique, angled outwards above and below vein 5, then inwardly oblique and minutely dentate, angled outwards in submedian fold and strongly inwards at vein 1; subterminal line whitish defined on each side by dark brown, dentate, oblique from costa to below vein 6; a crenulate black terminal line defining a series of whitish points on termen. Hind wing golden yellow, the inner area slightly suffused with red-brown; a narrow blackish medial band, oblique to submedian fold, then bent inwards to near inner margin; a blackish terminal band, its inner edge incurved at vein 2 and excurved at submedian fold, then narrowing to tornus; the termen very narrowly yellow towards apex, then with series of slight yellow marks in the interspaces; cilia whitish, chequered with brown at veins 6 to 2. Underside of fore wing pale yellowish, a faint red-brown antemedial shade, an oblique blackish brown medial band, terminal area grey-brown, its inner edge curved, cilia white chequered with brown at tips; hind wing as above but the medial band obsolescent, the terminal band pale grey-brown.

Ab. 1. *anthracita*. Fore wing almost uniform blackish.

Ab. 2. *nubilosa*. Hind wing suffused with blackish.

Ab. 3. *tmolia*. Hind wing with the medial black band almost evenly obliquely curved.

Hab. S. FRANCE, Zeller, Frey, and Leech Colls.; GERMANY, Zeller and Mutzell Colls.; AUSTRIA; HUNGARY, D'Emmich Coll.; SWITZERLAND, Mutzell Coll.; SPAIN, Andalusia, Mutzell Coll.; DALMATIA, Leech Coll.; GREECE, Leech and Merlin Colls.; RUSSIA, Mutzell Coll.; ARMENIA; KHURDISTAN; ASIA MINOR, Bithynia, Lydia, Taurus, Syria. *Exp.* 36-46 millim.

Larva. Kirby, Butt. & Moths Eur. p. 277; Hffm. Raup. p. 150, pl. 38. f. 1.

Yellowish mottled with red-brown; warts brown and prominent; 8th somite with a yellow and black prominence; 11th somite with two pointed prominences; ventral surface yellow; head red-brown mottled with yellow. Food-plant, Oak. 5.

7252. *Catocala patala*.

Catocala patala, Feld. Reis. Nov. pl. 112. f. 23 (1874); Hmpsn. Moths Ind. ii. p. 439.

Catocala volcanica, Butl. Cist. Ent. ii. p. 244 (1877); id. Ill. Het. B.M. ii. p. 40, pl. 33. f. 10.

Head and thorax bright rufous mixed with some greyish; frons with lateral black bars; tegulæ dark brown at tips, the patagia with some blackish scales near edges; pectus brownish white; tarsi dark brown ringed with whitish; abdomen fulvous yellow, the ventral surface pale yellow. Fore wing greenish ochreous suffused with rufous, the basal area deep rufous towards the antemedial line, the medial area rather greyer and with some dark irroration; subbasal line black, curved, from costa to submedian fold; antemedial line strong, black, oblique, sinuous; reniform with red-brown centre and greyish annulus defined on inner side by black and on outer by red-brown, an oblique black striga above it from costa; a rather quadrate spot defined by black below end of cell; postmedial line black slightly defined on outer side by grey, bent outwards below costa, then oblique, acutely angled outwards above and below vein 5, then incurved, minutely dentate, excurved at submedian fold and angled inwards at vein 1; subterminal line grey defined on outer side by red-brown, dentate, oblique from costa to below vein 7; a series of black striæ before termen defined on outer side by whitish. Hind wing golden yellow, the hair on inner margin blackish; a strong black fascia in submedian fold to the black medial band, which is oblique to submedian fold, then bent inwards and narrowing to inner margin, its outer edge excurved at vein 5; a black subterminal band, its inner edge oblique and minutely dentate to vein 4, angled inwards to the medial band at veins 2 and 1, and excurved at submedian fold, its outer edge crenulate to termen at veins 6 to 2; cilia yellowish

white with brown marks at veins 6 to 2. Underside of fore wing yellow, an oblique fuscous brown band from below costa before middle to vein 1, an oblique black medial band, its outer edge excurved at middle, terminal area blackish shading to grey-brown at termen, its inner edge curved; hind wing as above but the fascia in submedian fold slight, the subterminal band not connected with the medial band, its outer edge not crenulate to termen.

Hind tibiae with one spine, sometimes absent (? broken off).

Hab. JAPAN, Hakodaté (*Leech*), 1 ♂, Oiwaké (*Pryer*), 1 ♀, Nagahama (*Leech*), 1 ♀, Fushiki (*Leech*), 1 ♀, Nikko (*Maries*), 3 ♀, Tokio (*Fenton*), 1 ♂, Yokohama (*Jonas*), 2 ♂, 1 ♀ type *volcanica*; C. CHINA, Kiukiang (*Pratt*), 2 ♀; ? N. INDIA, type ♂ in Coll. Rothschild. *Exp.* 70–82 millim.

7253. *Catocala doerriesi*.

Catocala doerriesi, Staud. Stett. Ent. Zeit. 1888, p. 271; id. Rom. Mém. vi. p. 590, pl. 11. f. 8; id. Cat. Lep. pal. p. 249.

Catocala honrathi, Græs. Berl. Ent. Zeit. xxxii. p. 376 (1888).

Catocala hampsoni, Leech, Trans. Ent. Soc. 1900, p. 532.

♂. Head and thorax black-brown mixed with red-brown and grey-white; pectus brownish white; legs whitish irrorated with brown, the tarsi blackish ringed with white; abdomen rufous, the extremity grey-brown, the ventral surface brownish white. Fore wing black-brown mixed with grey, the inner area darker; sub-basal line black, angled outwards below costa and ending at submedian fold, a short black streak beyond it above vein 1; antemedial line double, black filled in with grey, oblique, waved; reniform with blackish centre and pale annulus defined by black-brown; an oblique white shade irrorated with brown from middle of costa to just below vein 2, with a lunulate spot defined by black on it below end of cell; postmedial line black, slightly defined on outer side by whitish, with an oblique white shade irrorated with brown before it from below costa to vein 5 and beyond it at middle, bent outwards below costa, then oblique and sinuous, acutely angled outwards above and below vein 5, then dentate and incurved, below submedian fold bent inwards and with a black streak on it and again excurved below vein 1; subterminal line indistinct, pale, dentate, oblique from costa to below vein 6, with a series of slight blackish streaks beyond it in the interspaces; a series of blackish points before termen defined on outer side by whitish. Hind wing orange-yellow, a black-brown fascia in submedian fold to the medial band and the hair on inner margin black-brown; medial band black, sinuous, oblique to vein 2 and bent inwards to inner margin, its outer edge excurved at vein 5; terminal area black, broadly at costa and narrowing to tornus, its inner edge angled inwards at veins 2 and 1; a narrow apical yellow patch with the cilia beyond it white, followed by a series of yellow points on termen to vein 1

with the cilia intersected with white beyond them. Underside of fore wing black-brown, an oblique yellowish medial band from costa to submedian fold, an obliquely curved postmedial white band, some whitish at apex, and the cilia chequered with white; hind wing as above, but the postmedial area white from costa to discal fold and the marks on termen white.

Hab. E. SIBERIA, Amurland, type ♂, ♀, *honrathi*, in Coll. Püngeler, Ussuri; W. CHINA, Chang-yang (*Pratt*), 1 ♂ type *hampsoni*. *Exp.* 68 millim.

7254. *Catocala tapestrina*.

Catocala tapestrina, Moore, Lep. Atk. p. 166, pl. v. f. 13 (1882); Hmps. Moths Ind. ii. p. 440.

♀. Head and thorax red-brown with some white scales, the tegulæ near tips and prothorax with slight white lines, the patagia with some black on outer edge; palpi with some white at base; lower part of frons white; antennæ with the basal joint white in front; pectus and legs grey-white, the latter irrorated with brown; abdomen reddish brown, the ventral surface grey-white. Fore wing red-brown mixed with purplish grey and suffused in parts with black-brown; the veins and submedian fold with greyish streaks; subbasal line black defined on each side by whitish, waved, from costa to submedian fold; antemedial line black defined on inner side by white, oblique, waved; reniform black-brown with greenish-grey annulus except above, its outer edge dentate, some black-brown suffusion beyond its lower extremity; a whitish spot defined by black and constricted at middle below end of cell; postmedial line black defined on outer side by white, bent outwards below costa, then oblique and sinuous, acutely angled outwards above and below vein 5, then inwardly oblique and dentate; subterminal line white, waved, oblique from costa to below vein 6 where it is met by an oblique dark shade from termen below apex, then with red-brown spots on its outer edge; a series of black striæ before termen defined on outer side by white; cilia with fine whitish lines at base and middle. Hind wing orange-yellow, the basal and inner areas suffused with brown leaving only slight yellow marks before the medial black band, which is oblique and irregular to vein 2, then bent inwards to inner margin, its outer edge angled outwards at vein 5; terminal area black, wide towards costa, its inner edge sinuous and excurved at middle and submedian fold; a small apical yellow patch followed by a terminal series of points in the interspaces. Underside of fore wing blackish brown, a yellowish patch at base, an oblique yellowish medial band from costa to submedian fold and whitish postmedial band dilated below costa and oblique to vein 4, some whitish at apex, the cilia with waved white line at base; hind wing as above but the basal and inner areas yellow slightly tinged with brown, a black discoidal point, cilia white at base.

Hab. PUNJAB, Simla (*Harford*), 1 ♀; SIKHIM. *Exp.* 72-78 millim.

7255. *Catocala conversa*.

- Noctua conversa*, Esp. Schmett. iv. pl. 105. B. ff. 1-3 (1787); Godt. Lép. Fr. v. p. 78, pl. 49. ff. 1, 2, & pl. 50. f. 1; Herr.-Schäff. Schmett. Eur., Noct. f. 448; Staud. Cat. Lep. pal. p. 250.
Noctua uxor, Hübn. Beitr. Schmett. ii. 3, p. 61, pl. 1. f. C (1791).
Noctua pasythea, Hübn. Eur. Schmett., Noct. ff. 455, 713-4 (1818).
Noctua agamos, Hübn. Eur. Schmett., Noct. f. 525 (1818).
Catocala carbonaria, Staud. Hor. Ent. Soc. Ross. vii. p. 130 (1870).

Head and thorax grey-white mixed with some red-brown and black; palpi with the 2nd joint red-brown except at base and tip; frons with lateral black bars; tegulae at middle and prothorax with red-brown bands; pectus and legs grey-white slightly mixed with brown, the tarsi black ringed with white; abdomen pale rufous, the ventral surface white tinged with rufous. Fore wing grey-white irrorated and in parts suffused with red-brown, the veins with slight blackish streaks; subbasal line with an oblique black bar from costa, then slight and ending at submedian fold; antemedial line black-brown defined on inner side by white with some red-brown suffusion before it, expanding into a patch at costa, then oblique, sinuous, slight in submedian interspace, a white shade beyond it from costa to median nervure; reniform defined by blackish and with some brown in centre, its outer edge somewhat dentate, an oblique dark bar above it from costa; a whitish spot defined by black below end of cell connected by a sinus on vein 2 with the postmedial line, which is black, bent outwards below costa, then obliquely downcurved, acutely angled outwards above and below vein 5, then inwardly oblique, dentate, angled outwards at submedian fold, then strong and strongly angled inwards at vein 1; subterminal line whitish defined on each side by red-brown, dentate, oblique from costa to below vein 6; a crenulate black-brown line just before termen with whitish points beyond it on termen. Hind wing golden yellow, some red-brown suffusion in submedian interspace to the obliquely curved black medial band ending at submedian fold and with its outer edge excurved at vein 5; terminal area blackish, broad towards costa, its inner edge excurved at middle; the termen narrowly yellow towards apex, then with slight yellow marks in the interspaces to vein 2; cilia white, yellow at base and chequered with brown at veins 6 and 2. Underside of fore wing white, an oblique brown shade from costa before middle to the obliquely curved black medial band with its outer edge excurved at vein 5, at submedian fold, terminal area blackish, its inner edge oblique to vein 4, some whitish at apex; hind wing as above but the basal costal area whitish tinged with rufous, the postmedial area white to vein 5.

Ab. 1. *agamos*. Fore wing darker, especially on underside.

Ab. 2. *carbonaria*. Fore wing almost wholly suffused with fuscous.

Hab. S. FRANCE, Frey Coll.; GERMANY, Zeller, Frey, and Mutzell Colls.; AUSTRIA, Bohemia, Moravia, Mutzell Coll., Carniola;

HUNGARY, D'Emmich Coll.; SWITZERLAND; SPAIN; ITALY; ALGERIA; DALMATIA, Leech and Merlin Colls.; BALKAN STATES; S. RUSSIA; ARMENIA; ASIA MINOR, Magnesia (*Lederer*), 1 ♂, Bithynia, Lydia, Taurus, Amanus Mts., 1 ♂, 2 ♀; SYRIA, Leech Coll., 1 ♂. *Exp.* 50-64 millim.

Larva. Kirby, Butt. & Moths Eur. p. 277; Hffm. Raup. p. 150, pl. 37. f. 15.

Blackish or brown; the 1st and 12th somites yellow with dark points; dorsalline pale; 4th and 5th somites with subdorsal yellow spots, the 7th to 10th somites with large yellowish grey lateral spots; warts whitish; head brown with dark markings.

Food-plants: Sloe and *Quercus sessiliflora*. 5.

***7256. *Catocala contemnenda*. (Plate CXCIX. fig. 7.)**

Catocala contemnenda, Staud. Iris, iv. p. 329, pl. 4. f. 11 (1891); id. Cat. Lep. pal. p. 248.

Head and thorax grey tinged with brown; tegulæ with slight dark line near tips; palpi whitish at base; pectus and legs whitish, the latter irrorated with brown; abdomen pale yellowish tinged with brown. Fore wing grey irrorated and in parts suffused with pale reddish brown; a black subbasal striga from costa; ante-medial line indistinct, double, brown with small blackish spots at costa, oblique, waved; reniform with sinuous brown outline and brown lunule in centre, an oblique blackish bar above it from costa; postmedial line blackish, slightly bent outwards below costa, then obliquely downcurved to below vein 6, then oblique and slightly sinuous to below end of cell where it forms a sinus to median nervure near origin of vein 2, then angled outwards in submedian fold, a diffused brown band beyond it oblique from costa to vein 5; subterminal line indistinct, pale slightly defined on outer side by brown, bent outwards to termen below apex, then minutely waved; a series of blackish striæ before termen; a waved blackish terminal line. Hind wing pale ochreous yellow; medial band black, oblique from costa to submedian fold, then slightly bent inwards, its outer edge excurved at vein 5; a terminal black band, broad at costa and narrowing to tornus, its inner edge angled inwards at vein 2; the termen narrowly whitish at apex; cilia white. Underside whitish; fore wing with oblique brown ante-medial shade from costa to submedian fold where it is confluent with the obliquely curved black medial band, an obliquely curved blackish subterminal band from below costa to tornus; hind wing as above but the terminal band paler and leaving more whitish at apex.

Hab. E. TURKESTAN, Kashgar; MONGOLIA, Aksu in Coll. Püngeler. *Exp.* ♂ 44, ♀ 50 millim.

7257. *Catocala hymenæa*.

Noctua hymenæa, Schiff. Wien. Verz. p. 91 (1776); Esp. Schmett. iv. pl. 106. f. 1; Hübn. Eur. Schmett., Noct. ff. 340, 528; Frr. Neue Beitr.

pl. 143; Godt. Lép. Fr. v. p. 87, pl. 50. f. 3; Staud. Cat. Lep. pal. p. 248.

Noctua posthuma, Hübn. Eur. Schmett., Noct. ff. 526-7 (1818).

Noctua connexa, Schultz, Ent. Zeit. Guben. p. 100 (1906).

Head and thorax purplish grey mixed with rufous; palpi with blackish bands on 2nd and 3rd joints; frons with black lateral bars; tegulae with black lines near base and at middle, the prothorax with rufous band; pectus and legs whitish, the tibiae irrorated with brown, the fore and hind tibiae with black streaks at base, the tarsi blackish ringed with white; abdomen pale rufous, the crests whitish at tips, the ventral surface white. Fore wing purplish grey tinged with red-brown and irrorated with a few blackish scales, especially on the veins of terminal area; subbasal line black, excurved below costa and ending at submedian fold; antemedial line black defined on inner side by white with some rufous before it, the line strong black and oblique from costa to submedian fold, then slighter and sinuous; reniform with whitish annulus defined by black, its centre defined by red-brown, a red-brown patch above it on costa and some blackish beyond it; a spot defined by black below end of cell, its outer edge slightly defined and somewhat excised; a faint red-brown line arising at vein 6, angled outwards beyond the cell, then oblique and sinuous; post-medial line black slightly defined on outer side by white, angled inwards below costa, then bent outwards, then obliquely down-curved, acutely angled outwards above and below vein 5, then incurved and slightly waved, excurved at submedian fold, incurved and emitting a slight streak at vein 1, a pale rufous band beyond it; subterminal line grey-white, obliquely incurved from costa to below vein 5, then slightly waved, an oblique sinuous blackish streak from termen below apex; a slight crenulate whitish terminal line with brown striae in the interspaces. Hind wing golden yellow, the base of submedian fold and inner margin slightly tinged with brown; a narrow black medial band, obliquely curved from costa to submedian fold, then bent inwards and ending at vein 1; a terminal black band from costa to just below vein 2 and a patch at vein 1; a yellow apical patch and slight points in the interspaces to vein 2; cilia whitish, chequered with brown at veins 6 to 2. Underside of fore wing yellow, an obliquely curved blackish medial band expanding towards costa where there is a whitish mark on it, terminal area blackish with some whitish at costa and termen, its inner edge curved, cilia whitish at base; hind wing as above but the costal area irrorated with brown, the medial band arising below costa and connected with a blackish discoidal lunule, the terminal band confluent with the patch at vein 1.

Ab. 1. *posthuma*. Hind wing with the black median band angled outwards at submedian fold.

Ab. 2. *connexa*. Hind wing with the terminal band not interrupted at submedian interspace.

Hab. FRANCE; GERMANY, Zeller and Mutzell Colls.; AUSTRIA; HUNGARY, D'Emmich Coll.; SWITZERLAND; ? N. ITALY; GREECE,

Merlin Coll.; ARMENIA; ASIA MINOR, Pontus, Bithynia, Lydia; SYRIA; E. SIBERIA, Ussuri; ? COREA. *Exp.* 42-50 millim.

Larva. Kirby, Butt. & Moths Eur. p. 277, pl. 43. f. 9; Hfm. Raup. p. 150, pl. 37. f. 14.

Ash-grey or red-brown with dark points; four fine dark-edged grey-white lines on dorsal area; warts brown, raised; 8th somite with a large double brown prominence; 11th somite with two red-brown points; ventral surface yellow with red-brown marks; head brown with two white and two dark stripes. Food-plant, Sloe. 5.

7258. *Catocala anna*. (Plate CXCIX. fig. 9.)

Catocala anna, Grote, Trans. Am. Ent. Soc. v. p. 96 (Sept. 1874).

Catocala amestris, Streck. Lep. Rhop. & Het. p. 96, pl. xi. f. 6 (Nov. 10th, 1874); Smith, Cat. Noct. N. Am. p. 336.

Catocala westcottii, Grote, Can. Ent. x. p. 195 (1878).

Head and thorax grey-white slightly mixed with red-brown; palpi red-brown; frons with black lateral bars; a blackish line between antennæ; tegulæ with diffused red-brown medial band and red-brown tips, the prothorax with narrow red-brown band, the patagia with a few blackish scales near upper edge; pectus suffused with rufous; tibiæ grey irrorated with red-brown, the tarsi blackish ringed with white; abdomen yellow suffused with rufous, the ventral surface brown tinged with white. Fore wing grey-white slightly tinged with red-brown and irrorated with dark brown; subbasal line black, excurved below costa and ending at submedian fold; antemedial line double, brown, the outer line strong, blackish, rather diffused and oblique to submedian fold, then incurved, reniform defined by black with some red-brown suffusion in centre and before and beyond it, an oblique blackish striga above it from costa; a rather triangular spot defined by black below end of cell, connected with the antemedial line and by a slight sinus on vein 2 with the postmedial line, which is double, the inner line black, the outer red-brown, bent outwards below costa, then obliquely downcurved, angled outwards above vein 5, then incurved, slightly sinuous, excurved at submedian fold and strongly angled inwards at vein 1; subterminal line indistinct, whitish, slightly defined on inner side by red-brown and with some dark brown before it on costa, slightly waved and obliquely incurved from costa to below vein 6; a series of minute blackish points defined on outer side by whitish before termen. Hind wing orange-yellow, the inner area slightly tinged with rufous; a black medial band oblique from costa to submedian fold, then bent inwards and ending at vein 1, its outer edge excurved at vein 5; the terminal area broadly black from costa to just below vein 2, its inner edge oblique to vein 4, then incurved, a black patch at vein 1; cilia white chequered with brown between veins 6 and 2. Under-side of fore wing yellow, the costa brownish, an oblique brown shade from costa before middle to the oblique blackish medial band

with its outer edge excurved at vein 5, at inner area, terminal area fuscous brown shading to grey at termen, its inner edge curved; hind wing as above but the basal costal area and postmedial area to vein 5 white irrorated with red-brown, a brown fascia in submedian fold to before the medial band, the terminal band conjoined to the patch at vein 1.

Ab. 1. *vescotti*. Smaller; fore wing rather darker, especially the medial area; hind wing with the terminal band conjoined to the patch at vein 1.

Hab. U.S.A., Wisconsin, 1 ♂, Illinois, 1 ♂ type *westcotti*, Nebraska, Texas, 1 ♂. Exp. 50–60 millim.

Larva. Beutenm. Bull. Am. Mus. Nat. Hist. xix. p. 508.

Dorsum yellowish, subdorsal area bluish white, sides bright yellow, the subdorsal area with six black lines, the two lower ones broader; an interrupted black lateral line; 1st somite yellow in front and behind; warts bright yellow; ventral surface deep black; no dorsal prominences or lateral filaments; claspers marked with yellow; head bluish white with four black stripes in front, the sides with irregular black spots, the vertex with more regular spots and a yellow patch on each lobe. Food-plant, *Robinia pseudacacia*.

7259. *Catocala abbreviatella*. (Plate CXCIX. fig. 11.)

Catocala abbreviatella, Grote, Trans. Am. Ent. Soc. iv. p. 14 (1872); id. Ill. Essay, p. 66, pl. iv. f. 40; Smith, Cat. Noct. N. Am. p. 335.

Head and thorax pale purplish grey, the head and tegulae tinged with rufous; frons with lateral black bars; pectus and legs brownish white, the tibiae irrorated with brown, the tarsi blackish ringed with white; abdomen yellow tinged with rufous, the ventral surface white. Fore wing pale purplish grey slightly tinged with rufous and irrorated with brown; subbasal line black, excurved below costa and ending at submedian fold, antemedial line strong black and oblique from costa to submedian fold, then faintly defined by rufous and almost obsolete, incurved at vein 1; reniform strongly defined by black below and moderately on outer side, on inner side faintly defined, and with a dark striga in centre, an oblique brownish bar above it from costa; the spot below end of cell defined by a black lunule on inner side only; postmedial line very faint except at costa and beyond the cell, where it is black, bent outwards below costa, then oblique, angled outwards above vein 5, then inwardly oblique and dentate, a faint rufous band beyond it defining the diffused grey subterminal line, which is obliquely incurved from costa to below vein 6; the terminal area suffused with rufous and with a series of blackish points before termen. Hind wing golden yellow, the base of submedian interspace faintly defined by red-brown; a rather narrow obliquely curved medial band from costa to vein 1, its outer edge excurved at vein 5; a broad terminal black band from costa to just below vein 2 and an

elliptical spot at vein 1, the inner edge of the band incurved at vein 2; the termen very narrowly yellow towards apex; cilia white, brown at base between veins 6 and 2. Underside of fore wing with the basal half pale yellow, a curved black-brown medial band narrowing to inner margin followed by a pale yellowish band, the terminal area grey-brown, its inner edge curved; hind wing as above, but the costal area irrorated with red-brown, a slight brown discoidal lunule connected above with the medial band, the terminal band confluent with the patch at vein 1.

Hab. U.S.A., Illinois, 1 ♀, Mississippi Valley, Iowa, Minnesota, Nebraska, Kansas (*Snow*), 2 ♂, Texas, Utah. *Exp.* 52-56 millim.

7260. *Catocala whitneyi*. (Plate CC. fig. 1.)

Catocala whitneyi, Dodge, Can. Ent. vi. p. 125 (1874); Smith, Cat. Noct. N. Am. p. 335.

Head and thorax pale purplish grey mixed with some rufous; palpi white with some black at sides of joints; tegulæ with diffused brown bands at middle and tips, the prothorax with narrow brown band; pectus and legs white mixed with brown, the tarsi blackish ringed with white; abdomen yellow slightly tinged with rufous, the anal tuft white, the ventral surface white irrorated with pale rufous. Fore wing grey-white thickly irrorated with red-brown; subbasal line represented by small black spots below costa and cell defined on outer side by white; antemedial line represented by an oblique wedge-shaped black bar from costa to submedian fold defined on inner side by white; reniform defined by black except above and with wedge-shaped black mark before its lower part, some fuscous in centre and an oblique brownish bar above it from costa; the spot below end of cell faint and red-brown defined on inner side by an oblique black striga; postmedial line with brown bar from costa, then hardly traceable, bent outwards below costa, oblique to above vein 5, then inwardly oblique; subterminal line grey, defined on inner side by a strong red-brown line and on outer side slightly by red-brown, obliquely incurved from costa to below vein 6 where it is met by a strong oblique dark red-brown shade from termen below apex; traces of a series of dark striæ before termen. Hind wing golden yellow; a narrow obliquely curved black medial band from costa to vein 1, its outer edge slightly excurved at vein 5; a black terminal band narrowing to vein 1 where it terminates, its inner edge incurved at vein 2 and excurved at submedian fold; the termen very narrowly yellow towards apex; cilia white, brown at base between veins 6 and 2. Underside of fore wing with the basal half yellow, a faint oblique red-brown antemedial shade, a narrow oblique black medial band ending at vein 1, its inner edge incurved at end of cell, followed by a pale yellow band, the terminal area black, narrowing to tornus and with its inner edge curved, the apex with some grey, cilia grey and brown; hind wing as above but the costal area white irrorated

with red-brown except at the band, a blackish discoidal lunule confluent with the medial band.

Hab. U.S.A., Ohio, 1 ♂, 2 ♀ type, Illinois, Nebraska, Kansas (Snow), 1 ♂, 1 ♀. *Exp.* 46-52 millim.

7261. *Catocala nuptialis*. (Plate CC. fig. 2.)

Catocala nuptialis, Wlk. x. 1206 (1857); Smith, Cat. Noct. N. Am. p. 335.

Catocala myrrha, Streck. Lep. Rhop. & Het. p. 97, pl. xi. f. 12 (1874).

Head and tegulae rufous, the latter deep rufous at tips; thorax grey suffused with rufous; pectus brown and grey; legs red-brown, the tarsi ringed with white; abdomen rufous, the ventral surface grey-brown. Fore wing grey suffused with red-brown and slightly irrorated with dark brown; subbasal line black, excurved below costa and ending at submedian fold; antemedial line indistinctly double, brown filled in with whitish, obliquely curved and slightly sinuous, the outer line strong at costa; reniform a black-brown lunule with its upper extremity produced to a point; an oblique brown striga above it from costa; a brown spot defined by some blackish scales below end of cell; postmedial line slight, black-brown, angled inwards below costa, then bent outwards, oblique and slightly sinuous to above vein 5, where it is angled outwards, then inwardly oblique and minutely waved, a rufous band beyond it defined by the rather diffused grey subterminal line which is obliquely incurved from costa to below vein 6; the terminal area suffused with rufous except at costa; a series of slight dark striae before termen. Hind wing golden yellow; an oblique black medial band excurved below vein 5 and ending at vein 1; a broad terminal black band narrowing to tornus, its inner edge slightly incurved at vein 2; the termen very narrowly yellow towards apex, then with slight yellow marks in the interspaces; cilia brown at base, whitish at tips. Underside of fore wing with the basal half yellow, the costa brown, an oblique brown antemedial shade, an oblique black medial band narrowing to inner margin followed by a rather narrow pale yellowish band arising just below costa, the terminal area broadly black-brown, its inner edge curved; hind wing as above but the costal area whitish thickly irrorated with red-brown, the medial band arising at subcostal nervure.

Hab. U.S.A. (*Doubleday*), 1 ♀ type, Illinois, Nebraska to Texas, Kansas (Snow), 4 ♂, 1 ♀, Colorado. *Exp.* 52-56 millim.

Genus **EPHESIA**.

Ephesia, Hübn. Verz. p. 278 (1827) Type. *fulminea*.

Proboscis fully developed; palpi upturned, the 2nd joint reaching to about middle of frons and rather broadly scaled, the 3rd moderate; frons smooth, with tuft of hair; eyes large, round; antennae of male ciliated; thorax typically clothed with hair and hair-like scales, the pro- and metathorax with spreading crests, the mesothorax with small paired crests; tibiae moderately

fringed with hair, the fore and hind tibiæ not spined, the mid tibiæ spined, the mid tibiæ of male dilated with a fold containing a tuft of long hair; abdomen with dorsal ridges of hair and hairy crests on basal segments. Fore wing triangular, the apex rounded, the termen evenly curved, crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the cell about one-third length of wing; veins 3, 4 from angle; 5 fully developed from just above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

SECT. I. Thorax clothed chiefly with scales.

- A. Hind wing black-brown.
- a. Hind wing without white apical patch..... *miranda*.
 - b. Hind wing with white apical patch.
 - a¹. Hind wing without medial white patch from costa ... *dissimilis*.
 - b¹. Hind wing with white medial patch from costa.
 - a². Hind wing with the white medial patch ending at vein 5 and with faint white spot below it in submedian fold *sancta*.
 - b². Hind wing with the white medial patch extending to vein 2 and with distinct white patch below it in submedian fold *actæa*.
- B. Hind wing yellowish white *nivca*.
- C. Hind wing crimson.
- a. Hind wing with the medial black band obliquely and almost evenly curved.
 - a¹. Fore wing strongly irrorated with fuscous black, the veins of terminal area not streaked with black *circe*.
 - b¹. Fore wing much less strongly irrorated with black, the veins of terminal area streaked with black *coccinata*.
 - b. Hind wing with the medial black band excurved below vein 5.
 - a¹. Fore wing with the postmedial line not dentate between veins 4 and 2 *ophelia*.
 - b¹. Fore wing with the postmedial line dentate between veins 4 and 2.
 - a². Fore wing with the ante- and postmedial lines distinct and defined on outer side by rufous *violenta*.
 - b². Fore wing with the ante- and postmedial lines very indistinct and not defined on outer side by rufous. *herodias*.
- D. Hind wing scarlet.
- a. Hind wing with the medial black band obliquely and almost evenly curved *ultronia*.
 - b. Hind wing with the medial black band excurved below vein 5.
 - a¹. Fore wing clouded in parts with blackish *verilliana*.
 - b¹. Fore wing not clouded with blackish *verneri*.
- E. Hind wing yellow or orange-yellow.
- a. Hind wing with the medial black band obliquely and almost evenly excurved.
 - a¹. Hind wing pale yellow, the basal area suffused with brown; underside of both wings yellowish white..... *intacta*.
 - b¹. Hind wing and underside of both wings golden yellow *ella*.
 - b. Hind wing with the medial black band excurved below vein 5.
 - a¹. Fore wing with the postmedial line dentate between veins 4 and 2.
 - a². Hind wing with the medial black band angled inwards in submedian fold.
 - a³. Fore wing not suffused with red-brown and blackish *helena*.

- b*³. Fore wing largely suffused with red-brown and blackish.
*a*⁴. Fore wing with the antemedial line angled outwards below costa *minuta*.
*b*⁴. Fore wing with the antemedial line oblique from costa to median nervure..... *olivia*.
*b*². Hind wing with the medial black band not angled inwards in submedian fold.
*a*³. Hind wing pale yellow, the inner area suffused with brown.
*a*⁴. Fore wing with the basal area suffused with dark brown *strecceri*.
*b*⁴. Fore wing with the basal area suffused with white *jónasi*.
*b*³. Hind wing orange-yellow with brown fasciæ in submedian fold and on inner margin.
*a*⁴. Fore wing with the reniform not whitish *pregnax*.
*b*⁴. Fore wing with the reniform whitish *hetera*.
*b*¹. Fore wing with the postmedial line incurved and not dentate between veins 4 and 2.
*a*³. Fore wing with black streak below base of cell.
*a*³. Fore wing with the ante- and postmedial lines closely approximated at inner margin, the medial area slightly tinged with greenish white *cratægi*.
*b*³. Fore wing with the ante- and postmedial lines well separated at inner margin, the medial area strongly tinged with greenish white.
*a*⁴. Fore wing with the basal area suffused with brown, the medial area strongly tinged with green ... *pretiosa*.
*b*⁴. Fore wing with the basal area not suffused with brown, the medial area slightly tinged with greenish.
*a*⁵. Fore wing with distinct red-brown band beyond the postmedial line, the terminal area of the ground-colour..... *præclara*.
*b*⁵. Fore wing with the red-brown band beyond the postmedial line obsolescent, the terminal area suffused with brown..... *dulciola*.
*b*². Fore wing without black streak below base of cell.
*a*³. Fore wing with the medial part of inner area suffused with rufous..... *grynea*.
*b*³. Fore wing with the medial part of inner area not suffused with rufous.
*a*⁴. Fore wing faintly tinged with olive-green, the lines distinct *alabama*.
*b*⁴. Fore wing strongly tinged with moss-green, the lines very indistinct *titania*.
*c*¹. Fore wing with the postmedial line curving downwards below vein 5 and forming a very broad sinus below end of cell *puella*.
c. Hind wing with the medial black band oblique to submedian fold, then more or less bent inwards towards inner margin.
*a*¹. Fore wing with the ground-colour brownish ochreous.
*a*². Fore wing without dark brown patch from middle of costa to the postmedial line between veins 6 and 3.
*a*³. Fore wing not suffused with black; hind wing with the terminal band interrupted at submedian interspace.
*a*⁴. Hind wing with the medial black band narrow and not expanding into a patch at middle ... *andromache*.

- b*⁴. Hind wing with the medial black band broader and expanding into a patch at middle *flavescens*.
*b*³. Fore wing suffused in parts with black; hind wing with the terminal band not interrupted at submedian interspace..... *butleri*.
*b*². Fore wing with dark brown patch from middle of costa to postmedial line between veins 6 and 3 ... *eminens*.
*b*¹. Fore wing with the ground-colour grey.
*a*². Fore wing with red-brown patch on postmedial costal area extending to lower angle of cell and vein 4.
*a*³. Fore wing with the costal patch prominent and extending to apex *mirifica*.
*b*³. Fore wing with the costal patch much less prominent and not extending to apex *largetaui*.
*b*². Fore wing without red-brown patch on postmedial costal area extending to lower angle of cell and vein 4.
*a*³. Hind wing with the inner area not suffused with brown.
*a*⁴. Hind wing without brown fascia in submedian fold..... *desdemona*.
*b*¹. Hind wing with brownish fascia in base of submedian fold *separans*.
*a*⁴. Hind wing with brown fascia in submedian fold extending to the medial band which is interrupted at discal fold..... *dauidi*.
*a*⁴. Hind wing with brown fascia in submedian fold extending to the spot on termen, the inner margin slightly brown *rutha*.
*b*³. Hind wing with the inner area suffused with brown.
*a*⁴. Fore wing with the postmedial line strongly angled outwards below vein 5.
*a*⁵. Fore wing without oblique dark shade from termen below apex.
*a*⁶. Hind wing with the terminal band not interrupted at submedian interspace.
*a*⁷. Fore wing on underside with the post-medial band white..... *inconstans*.
*b*⁷. Fore wing on underside with the post-medial band yellow.
*a*⁸. Fore wing largely suffused with black and brown *dotata*.
*b*⁸. Fore wing much greyer.
*a*⁹. Fore wing without black-brown mark beyond lower angle of cell between bases of veins 4, 3 *nubila*.
*b*⁹. Fore wing with black-brown mark beyond lower angle of cell between bases of veins 4, 3 *musmi*.
*b*⁹. Hind wing with the terminal band interrupted at submedian interspace *persimilis*.
*b*⁵. Fore wing with oblique dark shade from termen below apex..... *micronympha*.
*b*⁴. Fore wing with the postmedial line slightly angled outwards below vein 5.
*a*⁵. Hind wing with the terminal band connected with the medial band at veins 2 and 1 *connexa*.

- b*⁵. Hind wing with the terminal band not connected with the medial band at veins 2 and 1.
- a*⁶. Fore wing with the medial area not white.
- a*⁷. Fore wing with the postmedial line dentate between veins 4 and 2.
- a*⁸. Hind wing with the terminal band more or less completely interrupted in submedian interspace *nymphæa*.
- b*⁸. Hind wing with the terminal band not interrupted in submedian interspace.
- a*⁹. Fore wing not variegated with white *duplicata*.
- b*⁹. Fore wing variegated with white ... *diversa*.
- b*⁷. Fore wing with the postmedial line very slightly waved between veins 4 and 2.
- a*⁸. Fore wing without oblique dark shade from termen below apex.
- a*⁹. Fore wing largely suffused with dark brown *disjuncta*.
- b*⁹. Fore wing much greyer brown.
- a*¹⁰. Fore wing with the postmedial line slightly oblique below vein 5 and not connected by a sinus with the spot below end of cell. *eutychea*.
- b*¹⁰. Fore wing with the postmedial line very oblique below vein 5 and connected by a sinus with the spot below end of cell..... *distorta*.
- b*⁸. Fore wing with oblique dark shade from termen below apex *similis*.
- b*⁶. Fore wing with the medial area white.
- a*⁷. Fore wing with the medial area bluish white and without brown suffusion beyond lower angle of cell *amasia*.
- b*⁷. Fore wing with the medial area pure white and with brown suffusion beyond lower angle of cell..... *connubialis*.
- d*. Hind wing without medial black band.
- a*¹. Fore wing with the postmedial line present and forming a sinus below end of cell *triphænoides*.
- b*¹. Fore wing with the postmedial line obsolete *vallantini*.

*7262. *Ephesia miranda*.

Catocala miranda, H. Edw. Papilio, i. p. 118 (1881); Smith, Cat. Noct. N. Am. p. 351.

Head and thorax grey; tegulæ brown; abdomen grey-brown. Fore wing clear grey, the lines distinct, black; antemedial line oblique, slightly dentate; reniform grey defined by diffused white; postmedial line bent outwards below costa, then oblique and sinuous, angled outwards above and below vein 5, then waved, strongly bent inwards at vein 1 and reaching the inner margin near the antemedial line. Hind wing black, the cilia pure white. Underside fuscous brown, fore wing with a subterminal white band; both wings with the apical area white; hind wing with the cilia white.

Hab. U.S.A., Distr. of Columbia, Washington. *Exp.* 48 millim.
This species is unknown to me.

7263. *Ephesia dissimilis*.

Catocala dissimilis, Brem. Lep. Ost-Sib. p. 60, pl. 4. f. 15 (1864); Staud. Cat. Lep. pal. p. 250.

Head and thorax dark brown, the head and tegulæ with white mixed, the tegulæ with dark marks at middle and dark tips; palpi white at base and with white ring at extremity of 2nd joint; frons white below and with black bars at sides; pectus white; legs white irrorated with brown, the extremity of fore tibiæ and the tarsi banded with black; abdomen brown, the ventral surface white tinged with brown. Fore wing dark brown irrorated with grey-white; subbasal line black, angled outwards below costa and ending at submedian fold; antemedial line diffused, black faintly defined on inner side by whitish, excurved above inner margin; reniform with whitish centre defined by blackish and diffused white annulus; an oblique blackish bar above it from costa; postmedial line black slightly defined on outer side by whitish, expanding into a small spot at costa, bent outwards below costa, then oblique and slightly sinuous to below vein 6, where it is angled outwards, then inwardly oblique and waved; a diffused waved whitish subterminal line defined on outer side by blackish brown; a series of blackish points before termen defined on outer side by white. Hind wing dark reddish brown; an apical white patch extending to vein 6; cilia white at tips. Underside of fore wing with the basal half pale brown, the terminal half black-brown, an oblique whitish medial patch from below costa to vein 2, a white postmedial band, broad and oblique to vein 4 and narrowing to inner margin, a white apical spot; hind wing with the basal and inner areas grey-brown, the rest of wing dark brown, a whitish postmedial band, oblique and sinuous to vein 4 and obsolescent towards tornus, a white apical patch.

Hab. E. SIBERIA, Amurland, 2 ♂; JAPAN, Yezo (*Pryer*), 4 ♂, 1 ♀, Hakodate' (*Leech*), 1 ♂, 1 ♀; W. CHINA, Chang-yang (*Pratt*), 1 ♂, 1 ♀. *Exp.* 44-56 millim.

7264. *Ephesia sancta*. (Plate CC. fig. 3.)

Catocala sancta, Butl. Cist. Ent. iii. p. 134 (1885).

♀. Head and thorax reddish brown mixed with some whitish; palpi whitish at base and with white ring at extremity of 2nd joint; frons white below and with black bars at sides; pectus and legs white and brown, the fore tibiæ at extremity and the tarsi banded with blackish; abdomen brown, the ventral surface brownish white. Fore wing brown irrorated with whitish and suffused in parts with blackish; a slight dark subbasal line, angled outwards below costa and ending at median nervure; antemedial

line indistinct, dark, oblique, sinuous, some blackish beyond it from costa to median nervure followed by an oblique whitish shade from costa to median nervure; reniform with dark centre and whitish annulus defined by dark brown, an oblique brown striga above it from costa and a whitish spot defined by blackish below it; post-medial line black with some brownish white before it from costa to vein 5 and beyond it at middle, bent outwards below costa, then oblique, acutely angled outwards above and below vein 5, then dentate and with obscure dark fascia from it to antemedial line above vein 1; subterminal line indistinct, grey defined on outer side by dark brown, waved, oblique from costa to below vein 6; the interspaces of terminal area with black streaks and a series of points before termen defined on outer side by white. Hind wing blackish brown, the basal and inner areas with a greyish tinge; a triangular white medial patch from costa to vein 5, a small post-medial spot in submedian fold and a small apical patch; cilia white, chequered with brown from vein 6 to 2 and brown towards tornus. Underside of fore wing black-brown, some whitish at base, an oblique white medial patch from below costa to submedian fold, a white postmedial band, oblique to vein 4, and obsolescent towards inner margin, some white at apex; hind wing brown, the basal and inner areas bluish white streaked with brown, an oblique white postmedial band from costa to vein 4 and patch below vein 2, a small apical patch.

♂. Fore wing with the patch in cell, the spot below end of cell and the patch beyond middle of postmedial line pure white.

Hab. JAPAN, Yezo (*Pryer*), 1 ♂, 2 ♀ type. *Exp.* 52-56 millim.

7265. *Ephesia actæa*.

Calocala actæa, Feld. Reis. Nov. pl. 112. f. 22 (1874).

Head and thorax fuscous black mixed with some grey-white; pectus brownish white; legs strongly irrorated with white, the tarsi black ringed with white; abdomen fuscous brown, the ventral surface brownish white. Fore wing black-brown thickly irrorated with grey-white; subbasal line black, from costa to submedian fold; antemedial line double, black, waved, somewhat oblique; a whitish spot in middle of cell; reniform faintly defined by blackish and with traces of a whitish annulus, a blackish bar above it from costa; a small rather triangular white spot below end of cell defined by black, with a dark shade from it to inner margin; post-medial line black, bent outwards below costa, then oblique and slightly sinuous, acutely angled outwards above and below vein 5, then dentate and angled outwards in submedian fold, a sinuous blackish shade beyond it and some whitish irroration at middle; a subterminal series of rather wedge-shaped dark marks; a crenulate blackish line before termen with a series of small white spots beyond it. Hind wing black; an oblique wedge-shaped white patch from middle of costa to vein 2 and a spot below vein 2;

cilia white, chequered with black between veins 6 and 2. Underside of fore wing fuscous black, some bluish grey at base, an oblique wedge-shaped white patch from below middle of costa to vein 2, an obliquely curved postmedial white band, narrowing to vein 1 where it terminates, cilia white mixed with fuscous brown; hind wing with the basal and inner areas bluish white suffused with fuscous brown, the rest of wing fuscous black with the band and spot almost confluent, a small white patch at apex.

Hab. JAPAN, Oiwaké (*Pryer*), 1 ♀, Nikko (*Ito*), 1 ♀, Niregi (*Lewis*), 1 ♂, Fushiki (*Leech*), 1 ♂, 1 ♀, Tsuruga (*Leech*), 1 ♂, 1 ♀, Tokio (*Fenton*), 2 ♂, Yokohama (*Jonas, Leech*), 2 ♂, 2 ♀; W. CHINA, Chang-yang (*Pratt*), 1 ♂. *Exp.* 56-64 millim.

7266. *Ephesia nivea*.

Catocala nivea, Butl. Cist. Ent. ii. p. 241 (1877); id. Ill. Lep. Het. B.M. ii. p. 38, pl. 33, f. 4; Hmps. Moths Ind. ii. p. 442.

Head white with black line between antennæ which are brown; palpi and lower part of frons red-brown, the former ochreous white at base; tegulæ red-brown, the base white, blackish lines near base, at middle and near tips, where there are some whitish scales; thorax white mixed with some brownish; pectus and legs white tinged with red-brown, the fore tibiæ at extremities and the tarsi banded brown and white; abdomen brownish white, the anal tuft browner above. Fore wing grey-white suffused with pale red-brown and with numerous faint dark striæ, the costal area whiter to middle; subbasal line slight, black, oblique to median nervure where it is angled outwards, then bent inwards and ending at submedian fold; antemedial line dark defined on inner side by whitish, obsolescent except towards costa and inner margin, where it is black defined on inner side by white and greenish, with a small black spot at costa, then excurved and minutely dentate, angled outwards above inner margin; reniform white and greenish with its centre defined by black, elliptical; postmedial line black defined on outer side by white and greenish, very oblique from costa to below vein 6, where there is a black streak from it to termen, then dentate, obsolescent, and with black and white points on the veins, oblique to vein 2, below submedian fold strong, waved, and angled inwards on vein 1; the veins of terminal area with slight dark streaks; a series of black points defined on outer side by white before termen. Hind wing creamy yellowish-white; some brownish hair at base; an irregularly sinuous black medial patch from below costa to submedian fold, pointed at extremities and its outer edge angled outwards at vein 5; a curved black subterminal band from costa to vein 1, its inner edge sinuous; some black striæ on termen. Underside of fore wing yellowish white, the costa suffused with brown to middle, an obliquely curved black medial band from costa to submedian fold, narrowing below and its inner edge expanding into a discoidal spot, the terminal area fuscous brown, expanding towards costa; hind wing

with the base and costa tinged with brown, a black discoidal point, the medial band continued obliquely to costa towards which it is narrow and with oblique brownish striga from its lower extremity to vein 1, the terminal area fuscous brown to near tornus, extending on costa to near the medial band and leaving some yellowish white on termen at apex.

Ab. 1. Hind wing and underside whiter.—Punjab.

Hab. JAPAN, Hakodaté (*Leech*), 1 ♀, Oiwaké (*Pryer*), 2 ♂, Nikko (*Maries*), 3 ♀, Tokio (*Fenton*), 2 ♀, Yokohama (*Jonas, Leech*), 2 ♀ type; W. CHINA, Chang-yang (*Pratt*), 1 ♂; PUNJAB, Thundiani (*Yerbury*), 1 ♂. *Exp.* 98–116 millim.

7267. *Ephesia circe*. (Plate CC. fig. 4.)

Catocala circe, Streck. Lep. Rhop. & Het. p. 121 (1876); Smith, Cat. Noct. N. Am. p. 338.

♂. Head and thorax grey mixed with black and some brown; palpi with the 2nd joint mostly black at sides; frons and vertex of head with lateral black bars; tegulae with diffused black lines near base, at middle and tips; patagia edged with diffused black; pectus ochreous white; tibiae and tarsi banded with black; abdomen ochreous brown, the crests and anal tuft with some fuscous, the ventral surface ochreous white. Fore wing grey-white thickly irrorated and in parts suffused with fuscous brown; subbasal line black, angled outwards below costa and ending at submedian fold; a black streak above base of vein 1 and streak below median nervure before the antemedial line, which is double, oblique, waved, strongly angled inwards on vein 1; a whitish patch in and above cell before the reniform, which is elliptical and obscurely defined by white; an oblique black bar from middle of costa and faint highly dentate line beyond the cell between veins 7 and 2; a whitish and ochreous brown spot defined by black below end of cell; post-medial line black, indistinctly double towards costa, bent outwards below costa, then oblique and acutely angled outwards above and below vein 5, then retracted and with whitish and ochreous brown patch beyond it above vein 3, angled outwards above vein 2, bidentate at submedian fold and strongly angled inwards at vein 1; subterminal line whitish slightly defined on each side by fuscous, angled outwards below vein 7, then dentate; a series of black points before termen defined on outer side by white. Hind wing crimson-red, the costal area to beyond middle, the hair in submedian fold and on inner margin brownish; medial band black, sinuous, oblique to vein 4, slight below vein 1 and not reaching inner margin; a black terminal band broad at costa and narrowing to a point near tornus, its inner edge curved, sinuous below vein 4; the extreme apex pale red; cilia white mixed with ochreous brown and chequered with fuscous. Underside of fore wing fuscous, a black medial band broad and oblique to below vein 2 then narrow, a wedge-shaped pale crimson patch before it and curved band

beyond it from below costa to vein 2, the termen grey, broadly towards apex; hind wing with the costal area white irrorated with brown to the terminal band, the medial band ending above vein 1.

Hab. U.S.A., Texas, 1 ♂. *Exp.* 74 millim.

7268. *Ephesia coccinata*. (Plate CC. fig. 5.)

Catocala coccinata, Grote, Trans. Am. Ent. Soc. iv. p. 6 (1872); Streck.

Lep. Rhop. & Het. p. 21, pl. 3. f. 9; Smith, Cat. Noct. N. Am. p. 338.

Catocala sinuosa, Grote, Bull. Brooklyn Ent. Soc. i. p. 77 (1879).

Grey-white mixed with some brown and black; palpi with black patch at side of 2nd joint; frons with lateral black bars; tegulæ with two black medial lines, the prothorax with red-brown bar, the patagia with black line near edges, the metathoracic crest tinged with rufous; pectus and legs white and brown, the tarsi banded blackish and white; abdomen grey-brown tinged with rufous, the ventral surface brownish white. Fore wing bluish grey mixed with some whitish and irrorated with black, the veins streaked with black; subbasal line black, angled outwards below costa and ending at submedian fold; antemedial line rather indistinctly double, black, oblique and sinuous to submedian fold, then strongly angled inwards at vein 1; reniform with its centre defined by brown and with whitish annulus defined on outer side by black and somewhat dentate, an oblique dark bar above it from costa; a rather triangular white spot tinged with brown and defined by black below end of cell; postmedial line black slightly defined on outer side by whitish, bent outwards below costa, then oblique, very acutely angled outwards above and below vein 5, angled outwards above vein 2, bidentate at submedian fold, then with black streak on it and angled inwards at vein 1 to near antemedial line, a whitish patch tinged with red-brown beyond it between veins 4 and 3; subterminal line whitish defined on outer side by fuscous, dentate, oblique from costa to below vein 6; an oblique dark shade from termen below apex and a diffused dark streak at vein 2, the veins of terminal area finely streaked with black; a series of black points defined on outer side by whitish before termen. Hind wing bright crimson, the hair on inner margin grey-brown, some dark hair in base of submedian fold; medial band black, broad, obliquely curved, its inner edge incurved at submedian fold and its outer edge excurved at vein 5, terminating at vein 1 towards which it narrows; terminal area black, narrowing to tornus, its inner edge incurved slightly at vein 2; cilia brown at base, white at tips, almost wholly white towards apex. Underside of fore wing crimson, some grey-brown at base, an oblique black-brown shade from costa before middle to the oblique black postmedial band at vein 1, the postmedial area with white spot at costa, the terminal area black, the apex and termen to vein 2 suffused with grey, cilia chequered white and brown; hind wing as above but the basal costal area pale grey-brown, the medial band extending almost to inner margin where it is angled inwards, the narrow

postmedial area whitish to vein 5, cilia white chequered with black between veins 6 and 2.

Ab. 1. *sinuosa*. Hind wing with the medial band reduced to a line arising at vein 6, excurved at vein 5 and ending above vein 1, no brown suffusion on basal area; underside of fore wing with the crimson area much larger, the medial black band reduced to a line.

Hab. CANADA, Manitoba, Westbourne (*Wallis*), 3 ♂, 1 ♀; U.S.A., Eastern and Central States, New York, 3 ♂, Illinois, Florida, 1 ♂ type *sinuosa*. *Exp.* 70–74 millim.

Larva. Coquillett, *Papilio*, i. p. 56.

Dark grey; 8th somite with a protuberance, the 11th somite with two slight protuberances; head grey edged with black. Food-plant, Oak.

7269. *Ephesia ophelia*. (Plate CC. fig. 6.)

Catocala ophelia, H. Edw. Bull. Brooklyn Ent. Soc. ii. p. 95 (1880); Smith, Cat. Noct. N. Am. p. 337.

Catocala dollii, Beutenm. Bull. Am. Mus. Nat. Hist. xxiii. p. 940 (1907).

♂. Head and thorax red-brown mixed with grey-white; frons dark brown at sides; tegulae with black lines near base and at tips, a red-brown medial shade; patagia with some black scales near upper edge; pectus white; legs whitish irrorated with red-brown, the fore tibiae with black band near extremity, the tarsi ringed with white; abdomen pale fulvous brown, the crests tipped with white. Fore wing violaceous grey irrorated with red-brown; subbasal line blackish, angled outwards below costa and ending at submedian fold; antemedial line double, filled in with grey and with some red-brown suffusion before it, the outer line black and strong from costa to submedian fold, obliquely excurved from costa to submedian fold, then sinuous; reniform with red-brown centre and whitish annulus slightly defined by brown, its outer edge dentate; a blackish bar from middle of costa and elliptical whitish spot defined by black below end of cell; postmedial line black with a rufous band beyond it except at costa and inner margin, bent outwards below costa, then oblique, acutely angled outwards above and below vein 5 and running inwards as a streak above vein 1; subterminal line grey-white defined on outer side by brown, dentate, oblique from costa to below vein 6; a series of black striae before termen with grey beyond them; the veins of terminal area with slight dark streaks. Hind wing crimson, the base and inner margin with some reddish brown hair; medial band black, obliquely excurved from costa to submedian fold, then bent inwards and ending at vein 1; terminal area black narrowing to near tornus where it terminates, its inner edge sinuous, some crimson beyond it on termen; cilia white tinged with crimson, chequered with brown between veins 6 and 2 and brown towards tornus. Underside of fore wing fuscous brown with a purplish gloss on terminal half, an oblique pale crimson medial patch from subcostal nervure to vein 2, postmedial band whitish at costa,

then pale crimson with whitish streaks on the veins, obliquely curved, ending at vein 1, cilia white intersected with brown; hind wing crimson, the costal area whitish irrorated with brown to beyond middle, the postmedial and terminal bands as above but tinged with purplish.

Ab. 1. *dolli*. Head and thorax darker grey; fore wing thickly irrorated with black, the lines and spots less distinct.—Colorado.

Hub. U.S.A., Colorado, California, 1 ♂, Mendocino Co. *Exp.* 56 millim.

*7270. *Ephesia violenta*. (Plate CC. fig. 7.)

Catocala violenta, H. Edw. Bull. Brooklyn Ent. Soc. iii. p. 58 (1880), ♂; Smith, Cat. Noct. N. Am. p. 337.

Catocala chiricahua, Poling, Can. Ent. xxxiii. p. 127, ♀ (1901); Dyar, Cat. Lep. N. Am. p. 227.

♂. Head and thorax bluish grey mixed with red-brown; palpi with black-brown patch at side of 2nd joint; frons with lateral black bars; antennæ black; tegulæ whitish with red-brown line near base and band near tips; prothorax with red-brown band; pectus and legs grey mixed with brown, the tarsi blackish ringed with white; abdomen red-brown, the ventral surface grey tinged with red-brown. Fore wing blue-grey irrorated with red-brown; the veins streaked with black; subbasal line black, angled outwards below costa and ending at submedian fold; antemedial line blackish defined on inner side by red-brown, oblique to submedian fold and angled inwards at vein 1, diffused at costa and produced to a slight dark streak on median nervure; reniform rufous irrorated with white, slightly defined by blackish, incompletely above and on outer side, an oblique blackish mark above it from costa; a rufous spot faintly defined by whitish and black below end of cell; postmedial line black slightly defined on outer side by whitish, forming a small spot at costa, strongly bent outwards below costa, then very oblique and forming long teeth above and below vein 5, then bent inwards and waved, very strongly angled inwards at vein 1 and forming a black streak to near the antemedial line, its outer side defined by a red-brown band with a black spot at costa; a waved blackish terminal line with black points at the interspaces; cilia chequered brown and grey. Hind wing crimson, the inner margin with some brown hair; an obliquely curved black medial band, expanding below costa and in submedian interspaces, excurved at middle, slight below vein 1, and ending above inner margin; a black terminal band narrowing towards tornus which it does not reach, its inner edge sinuous; cilia white with some crimson at base, crimson at submedian interspace, chequered with black between veins 6 and 2 and blackish towards tornus. Underside of fore wing crimson, an oblique dark brown shade from costa before middle joining the curved black postmedial band on inner area, a postmedial white spot on costa, the terminal area black-brown with some greyish at apex, cilia white intersected with brown; hind wing with the basal costal area brown, the postmedial area whitish to

vein 5, cilia white intersected with brown at veins 6 to 2, brown towards tornus.

Hind tibiæ with 2 spines between the medial and terminal spurs.

♀. Fore wing with the spot below end of cell connected by a sinus with the postmedial line.

Hab. U.S.A., Colorado, Arizona, Cochise Co., Palmerlee in Coll. W. Barnes. *Exp.* ♂ 62, ♀ 70 millim.

7271. *Ephesia herodias*. (Plate CC. fig. 8.)

Catocala herodias, Streck. Lep. Rhop. & Het. p. 121 (1876); Smith, Cat. Noct. N. Am. p. 338.

♂. Head and thorax red-brown mixed with grey, the meta-thoracic crest darker; pectus and legs whitish mixed with red-brown; abdomen pale rufous, the hairy crests on basal segments darker at tips, the ventral surface whitish tinged with rufous. Fore wing grey suffused with reddish brown and slightly irrorated with black; antemedial line very indistinct and rather diffused, oblique to submedian fold; reniform with very indistinct whitish annulus and some whitish in centre; postmedial line very indistinct, dark, bent outwards below costa, oblique to vein 6, strongly angled outwards above and below vein 5, then strongly dentate and very strongly angled inwards on vein 1; the veins of terminal half with slight dark streaks; subterminal line absent. Hind wing pale crimson; a rather narrow black medial band, oblique towards costa and expanding below the costa, excurved at veins 5 and 1 and angled inwards above inner margin; a terminal black band narrowing to tornus, its inner edge slightly incurved at vein 2; the termen narrowly white tinged with crimson towards apex and in submedian interspace; cilia white, chequered with brown at veins 6 to 2 and brown towards tornus. Underside of fore wing white tinged with crimson, the costa brown, an oblique diffused brown antemedial shade from costa before middle to the obliquely curved medial black band at inner margin, the latter expanding at middle, the terminal area brown with curved inner edge, cilia chequered white and blackish; hind wing with the basal costal area to discal fold and the postmedial area to vein 4 whitish irrorated with red-brown.

Hab. U.S.A., New York, 1 ♂. *Exp.* 60 millim.

7272. *Ephesia ultronia*. (Plate CC. fig. 9.)

Eunetis ultronia, Hübn. Zutr. ii. p. 26, ff. 347-8 (1818); Packard, Guide to Study of Insects, p. 317, pl. viii. f. 4; Streck. Lep. Rhop. & Het. p. 73, pl. ix. f. 7; Smith, Cat. Noct. N. Am. p. 338.

Catocala adriana, H. Edw. Bull. Brooklyn Ent. Soc. iii. p. 57 (1880).

Catocala celia, H. Edw. Bull. Brooklyn Ent. Soc. iii. p. 58 (1880).

Catocala mopsa, H. Edw. Bull. Brooklyn Ent. Soc. iii. p. 58 (1880).

Catocala lucinda, Beutenm. Bull. Am. Mus. Nat. Hist. xxiii. p. 940 (1907).

Head and thorax bright rufous mixed with some grey-white; frons with blackish lateral bars; tegulæ with dark medial line, the

prothorax with blackish bar, the patagia with black lines near edges; pectus and legs whitish tinged with rufous, the tarsi blackish ringed with white; abdomen pale rufous, the basal crests with some dark brown, the ventral surface white. Fore wing bright rufous, the veins with dark streaks, a diffused white streak above median nervure and thence above vein 2 and extremity of vein 3 to termen; an oblique subbasal black striga from costa; a fine black streak in submedian fold to just before the antemedial line, which is blackish, slightly angled outwards below costa and in cell, oblique to submedian fold, then inwardly oblique; reniform with its centre defined by brown and with white annulus, an oblique dark bar above it from costa, some fuscous suffusion before it in cell and fuscous and grey suffusion beyond it to the postmedial line where it is met by an oblique dark shade from termen below apex; a small spot defined by dark brown below end of cell connected by a sinus with the postmedial line at vein 2; postmedial line black, slightly bent outwards below costa, then oblique, very acutely angled outwards above and below vein 5, then dentate, strongly angled outwards and somewhat bidentate at submedian fold and angled inwards at vein 1 to near the antemedial line; subterminal line white, strongly dentate, oblique from costa to below vein 6; a series of blackish points before termen. Hind wing bright scarlet, the hair on inner margin brown, some diffused brown in submedian fold to the obliquely curved black medial band extending to inner margin, its edges sinuous and its inner edge incurved at discal and submedian folds; terminal area black, narrowing to tornus; the termen narrowly white tinged with red towards apex, then with slight marks in the interspaces to vein 2; cilia white, chequered with fuscous between veins 6 and 2, fuscous towards tornus. Underside of fore wing blackish brown, an oblique pale scarlet medial band from below costa to vein 1, a white postmedial band, oblique to vein 4 and tinged with scarlet towards inner margin, the termen brownish white; hind wing as above, the basal costal area ochreous white, the postmedial area whitish irrorated with brown to discal fold, a black discoidal bar connected above with the medial band, which is narrower and more irregular.

Ab. 1. *lucinda*. Fore wing more uniform pale or greenish grey, the inner area suffused with dark red-brown.

Ab. 2. *adriana*. Fore wing with the inner area not darker than the ground-colour.

Ab. 3. *celia*. Hind wing with the medial band reduced to a line.—Florida.

Hab. CANADA, Ontario, Orillia (*Bush*), 1 ♀; U.S.A., Eastern States to Florida, Middle and Central States, 1 ♂, 4 ♀, New York, Evans Center (*Grote*), 2 ♂, 1 ♀, Ohio, Columbus, 2 ♂, Kansas (*Snow*), 1 ♂, 1 ♀. *Exp.* 52–64 millim.

Larva. Guen. Noct. iii. p. 89; Packard, Guide to Study of Ins. p. 317, pl. viii. f. 4a; Saund. Can. Ent. vi. p. 147, & xii. p. 4.

Clear grey to very dark brown, with darker dots and reddish tubercles; 8th somite with a protuberance concolorous or reddish;

11th somite with a reddish lunule. Food-plants : Wild Cherry, Plum, Dog-wood and Live Oak.

7273. *Ephesia verilliana*. (Plate CC. fig. 10.)

Catocala verilliana, Grote, Can. Ent. vii. p. 185 (1875); Smith, Cat. Noct. N. Am. p. 337.

Catocala votiva, Hulst, Bull. Brooklyn Ent. Soc. vii. p. 41 (1884).

Head and thorax brown mixed with white and some black; palpi with black patch at side of 2nd joint; frons with lateral black bars; vertex of head with V-shaped black mark; tegulae with brown medial line and blackish tips, the prothorax with narrow dark band, the patagia with black line near edges; pectus whitish tinged with brown; the legs irrorated with blackish, the tarsi black ringed with white; abdomen reddish ochreous, the basal crests brown and grey, the extremity tinged with brown, the ventral surface white irrorated with ochreous brown. Fore wing pale grey tinged in parts with red-brown and irrorated with dark brown; subbasal line black, angled outwards below costa and ending at submedian fold, a diffused black fascia beyond it below the cell to the antemedial line, which is double filled in with whitish, the inner line angled inwards below costa and at median nervure, the outer line strong and oblique to submedian fold, incurved at vein 1; reniform with its centre defined by brown and white annulus defined by brown, an oblique blackish bar above it from costa; a small rounded whitish spot defined by black below end of cell; a faint oblique brown line beyond the cell from vein 6 to submedian fold; postmedial line black defined on outer side by rufous, bent outwards below costa, then obliquely downcurved, acutely angled outwards above and below vein 5, slightly excurved above and below vein 2, acutely angled inwards and with black streak on it above vein 1; subterminal line indistinct, pale, angled inwards below costa, then oblique to below vein 6, then waved; a slight oblique brown shade from termen below apex; a series of black striae slightly defined on outer side by whitish before termen; cilia with dark line near base and intersected with blackish at the veins. Hind wing pale scarlet, the hair on inner margin tinged with brown, some brownish hair in base of submedian fold; a narrow oblique black medial band, excurved beyond lower angle of cell and ending at vein 1, a dark point between it and inner margin; a terminal black band, narrowing to tornus, the termen narrowly red towards apex and in submedian interspace and with series of small spots between veins 6 and 2; cilia white, chequered with black-brown between veins 6 and 2 and at vein 1. Underside of fore wing pale scarlet, an oblique brown shade from costa before middle to vein 1, above which it extends to near base and to the oblique postmedial black band narrowing to inner margin and with its outer edge excurved at vein 5, terminal area black-brown shading to grey irrorated with brown towards costa and apical part of termen; hind wing as above but the basal costal area and the postmedial area to

vein 5 white irrorated with brown, a slight brown spot on upper discocellular, the terminal band shading to whitish irrorated with brown towards costa and at termen, a fine dark terminal line.

Ab. 1. *votiva*. Hind wing yellowish tinged with red.—New Mexico, Arizona.

Hab. U.S.A., Texas, 2 ♂ type, Colorado, California (*Walsingham*), 1 ♂, Humbolt Co., 1 ♂, New Mexico, Albuquerque (*Oslar*), 3 ♂, 1 ♀, Arizona, Yavapai Co., Prescott (*Kunzé*), 1 ♂, 1 ♀. *Exp.* 46–54 millim.

Larva. Food-plant, Scrub Oak.

*7274. *Ephesia verneri*. (Plate CC. fig. 11.)

Catocala werneri, Biederman, Ent. News Philad. xx. p. 76 (1909).

Catocala beutenmulleri, Barnes, Can. Ent. xlii. p. 251 (1910).

♂. (*beutenmulleri*.) Head and thorax pale blue-grey mixed with red-brown; palpi white mixed with red-brown; frons with lateral black bars; antennæ blackish and with a blackish line between their bases; tegulæ with black lines near base and at tips and red-brown band at middle; patagia with some black scales on edges; pectus and legs white and brown, the tarsi black ringed with white; abdomen pale crimson, grey tinged with brown at base and extremity, the ventral surface white tinged with red-brown. Fore wing pale blue-grey tinged with red-brown and slightly irrorated with dark brown; a black streak below base of cell; subbasal line black, waved, from costa to submedian fold; antemedial line double, blackish, filled in with white towards costa and with some red-brown on its costal half, bent outwards towards costa, then oblique, sinuous, and angled inwards at vein 1; reniform with whitish annulus, its centre slightly defined by brown, its outer edge rather irregular, an oblique black striga above it from costa; a whitish spot faintly defined by brown below end of cell; postmedial line blackish defined on outer side by whitish and with slight red-brown band beyond it, strongly bent outwards below costa, then obliquely downcurved, angled outwards above and below vein 5, then incurved and slightly waved to submedian fold, and very strongly angled inwards at vein 1; subterminal line indistinct, whitish, waved, oblique to below vein 6; the veins of terminal area streaked with black and a slight oblique dark shade from termen below apex; a series of black points faintly defined on outer side by whitish before termen; cilia intersected with blackish at the veins. Hind wing crimson; a narrow obliquely excurved black medial band from costa to vein 1, expanding somewhat below the costa; a terminal black band not reaching the tornus, its inner edge oblique to vein 4 then sinuous; the termen narrowly crimson towards apex and in submedian interspace and with small spots between veins 6 and 2; cilia white, chequered with black at veins 6 to 1. Underside of fore wing crimson, an oblique brown shade from costa before middle to the obliquely curved black postmedial band at inner margin, the terminal area black, narrowing to tornus, cilia chequered

black and white; hind wing with the basal costal area white suffused with red-brown, the postmedial area white irrorated with red-brown to discal fold.

Ab. 1. *verneri*. Fore wing with saddle-shaped black-brown patch on inner half of medial area from the antemedial to the subterminal line, its outer edge produced upwards towards apex, reniform with three triangularly placed black spots on it.

Hab. U.S.A., Utah, Provo in Coll. W. Barnes, Arizona, Huachuca Mts. *Exp.* 54 millim.

7275. *Ephesia intacta*. (Plate CC. fig. 12.)

Catocala intacta, Leech, P. Z. S. 1880, p. 548, pl. 53. f. 7.

♀. Head and thorax reddish brown mixed with grey-white; palpi white towards base and at extremity of 2nd joint; pectus white; legs white irrorated with brown, the tarsi ochreous banded with fuscous; abdomen whitish suffused with brown. Fore wing white with a faint bluish tinge and irrorated with brown, the terminal area more suffused with brown; subbasal line blackish, excurved below costa and ending at submedian fold; antemedial line double, brown filled in with white, the inner line diffused, the outer strong and black from costa to submedian fold, oblique, sinuous; a diffused dark brown discoidal spot connected with a patch on costa; an irregular spot defined by brown below end of cell, connected with the postmedial line, which is brown defined on outer side by white, bent outwards below costa, then oblique and minutely waved, angled outwards above and below vein 5, then incurved and dentate, at vein 2 forming the sinus below end of cell; a dentate whitish subterminal line defined on each side by brown, oblique from costa to below vein 6; a series of blackish points before termen. Hind wing very pale yellow, the basal area tinged with brown, the veins of postmedial area streaked with brown; an obliquely curved medial brown band; the terminal area black-brown, broadly at costa and narrowing to tornus; a yellow apical patch followed by slight yellowish marks on termen; cilia yellowish white chequered with brown. Underside of fore wing yellowish white with a broad brown fascia in submedian interspace from base to the brown postmedial band which expands into a discoidal patch, terminal area black-brown expanding towards costa; hind wing as above but with more yellowish white on termen from apex to vein 4.

Hab. JAPAN, Nagahama (*Leech*), 1 ♀ type. *Exp.* 66 millim.

7276. *Ephesia ella*.

Catocala ella, Butl. Cist. Ent. ii. p. 242 (1877); id. Ill. Het. B.M. ii. p. 39, pl. 33. f. 5; Staud. Cat. Lep. pal. p. 249.

Catocala nutrix, Gräs. Berl. Ent. Zeit. xxxii. p. 374 (1888).

Head and thorax grey mixed with black-brown; palpi white towards base; sides of head white, the frons with black lateral

bars; tegulæ blackish at tips; pectus white slightly tinged with brown; legs white irrorated with blackish, the tarsi blackish ringed with white; abdomen fulvous yellow, the ventral surface white tinged with red-brown. Fore wing pale greenish grey irrorated with dark red-brown, the medial area with diffused dark brown shade; subbasal line black, sinuous, from costa to submedian fold; antemedial line double filled in with whitish, the inner line slight, the outer strong, black, oblique, sinuous, excurved in submedian interspace; reniform faintly defined by blackish; a round white spot defined by black below end of cell; postmedial line black, bent outwards below costa, then oblique, acutely angled outwards above and below vein 5, then incurved and minutely waved, angled inwards at submedian fold and with black streak on it to near antemedial line; subterminal line whitish slightly defined on each side by fuscous, minutely waved, obliquely incurved to below vein 7 where it is met by an oblique dark shade from termen below apex; a series of black points before termen slightly defined on outer side by whitish. Hind wing golden yellow; some brown suffusion in submedian interspace to the rather narrow obliquely curved medial black band from costa to just above inner margin; terminal area black, narrowing to tornus, its inner edge incurved at veins 2 and 1; the termen narrowly yellow towards apex, then with slight yellow marks in the interspaces to vein 2; cilia yellowish white, chequered with brown between veins 6 and 2. Underside of fore wing white, the inner area yellow to the medial band, a brownish antemedial shade from costa to submedian fold, an oblique black medial band narrowing to inner margin, terminal area black, its inner edge curved, cilia chequered blackish and white; hind wing as above but the postmedial area whitish to discal fold.

Hab. E. SIBERIA, Amurland, 3 ♂, 2 ♀, Ussuri; JAPAN, Yezo (*Pryer*), 3 ♂, 1 ♀, Hakodaté (*Leech*), 1 ♂, 1 ♀, Yokohama (*Jonas, Manley*), 1 ♂, 2 ♀ type, Oiwaké (*Pryer*), 1 ♂; W. CHINA, Wa-shan (*Pratt*), 1 ♀, Ta-chien-lu (*Pratt*), 1 ♂, 1 ♀. *Exp.* 56-66 millim.

7277. *Ephesia helena*. (Plate CC. fig. 13.)

Catocala helena, Ev. Bull. Mosc. 1856, ii. pl. i. f. 8, & 1857, iv. p. 378; Staud. Cat. Lep. pal. p. 249.

♀. Head and thorax grey mixed with brown and black; palpi brownish white at base; frons with lateral black bars; tegulæ with black medial line; pectus brownish grey; tarsi black with pale rings; abdomen fulvous yellow irrorated with fuscous, the ventral surface brownish white. Fore wing grey suffused in parts with brown and irrorated with black; subbasal line black, sinuous, from costa to submedian fold; antemedial line double, black, sinuous, oblique to submedian fold and incurved at vein 1, some black on it below the cell and some whitish beyond it in and below the cell; reniform defined by blackish and with blackish centre, an oblique black bar above it from costa; an oblique elliptical spot defined by

black below end of cell; postmedial line double, black, the outer line less distinct, bent outwards below costa, then oblique and minutely waved, angled outwards above and below vein 5, then inwardly oblique, waved and strongly angled inwards at vein 1; subterminal line whitish slightly defined on outer side by fuscous, waved, oblique from costa to vein 6 where it is met by an oblique black streak from termen below apex; a line formed by black striae before termen. Hind wing golden yellow, the inner area slightly tinged with rufous; a black medial band, oblique to vein 2, then angled inwards at submedian fold and extending to inner margin, expanding below costa and with its outer edge excurved at vein 5; a black subterminal band, its inner edge incurved at discal fold, then waved, its outer edge waved to termen between veins 6 and 2; cilia with brownish marks at veins 6 to 2. Underside of fore wing yellow, an oblique fuscous shade from costa before middle to vein 1, an oblique black medial band incurved below costa and excurved at middle, an obliquely curved black subterminal band from costa to submedian fold, the terminal area ochreous irrorated slightly with brown; hind wing as above but the costal area ochreous irrorated with brown, a black discoidal spot conjoined to the medial band.

Hab. MONGOLIA, Changhai Mts.; E. SIBERIA, Amurland, 2 ♀. *Exp.* 60 millim.

7278. *Ephesia minuta*. (Plate CC. fig. 14.)

Catocala minuta, W. H. Edw. Proc. Ent. Soc. Phil. ii. p. 512 (1864); Smith, Cat. Noct. N. Am. p. 331.

Catocala parvula, W. H. Edw. Proc. Ent. Soc. Phil. ii. p. 512 (1864).

Catocala mellitula, Hulst, Bull. Brooklyn Ent. Soc. vii. p. 35 (1884).

Head and thorax whitish mixed with pale rufous; palpi black-brown; frons with lateral black bars; shoulders with black-brown streaks; patagia with dark brown streak near upper edge, fore tibiae with black and white band at extremity, the tarsi black ringed with white; abdomen rufous, the ventral surface white tinged with rufous. Fore wing with the base whitish and pale rufous, the rest of wing red-brown suffused with blackish; subbasal line black defined on outer side by whitish, excurved below costa and ending at submedian fold; a band of black suffusion on antemedial area before the antemedial line, which is double, black filled in with whitish, bent outwards below costa, then waved and excurved above inner margin; reniform small, faintly defined by brown, an oblique dark bar above it from costa; a small pale spot defined by brown below end of cell, its outer edge somewhat bidentate, postmedial line blackish slightly defined on outer side by whitish, oblique and slightly sinuous towards costa, angled outwards above and below vein 5, then inwardly oblique, dentate and angled inwards at vein 1; subterminal line whitish slightly defined on each side by dark brown, strong, diffused and obliquely incurved from costa to below vein 6, then dentate; a crenulate black terminal line. Hind wing golden yellow, the inner area suffused with brown;

a rather narrow blackish medial band, excurved below vein 5; a terminal blackish band from costa to just below vein 2 and a patch at vein 1; a yellow apical patch, followed by a series of points in the interspaces to vein 2; cilia yellowish, chequered with brown at veins 6 to 2 and at vein 1. Underside of fore wing with the basal half yellow, an obliquely curved blackish medial band, its inner edge incurved at end of cell and its outer edge excurved at middle, followed by a yellowish white band, a curved blackish subterminal band, the termen whitish; hind wing as above but the postmedial area to vein 5 and the apex pale yellowish.

Ab. 1. *parvula*. Fore wing tinged with brown, the inner area except at base suffused with black-brown.

Ab. 2. *mellitula*. Fore wing with the inner half of medial area red-brown, the antemedial area blackish, the reniform obsolete, the spot below end of cell annulate, the postmedial and terminal areas darker than the medial area, with some white before the subterminal line except towards costa.

Hab. U.S.A., Eastern and Middle States, 2 ♂, Kentucky, 1 ♂, 1 ♀. *Exp.* 44–46 millim.

Larva. French, Can. Ent. xxvii. p. 331; Dodge, Can. Ent. xxxiii. p. 222.

Brownish black, with a paler dorsal stripe and broad whitish patches on dorsum of somites 4, 7, 8, the patch on somite 4 usually W-shaped; warts white in front, black behind, followed by black patches, on anal somites the dorsal warts large and reddish brown; somites 8 and 9 with velvety black bands; somite 8 with a high ridge inclined backwards and tipped with white or with white flecks; filaments very slight; ventral surface greenish yellow with large black spots; head dusky in front, black behind with a small pale spot near top of each lobe. Food-plants: *Gleditschia triacanthos*, Honey-Locust. 5.

*7279. *Ephesia olivia*. (Plate CC. fig. 15.)

Catocala olivia, H. Edw. Bull. Brooklyn Ent. Soc. ii. p. 95 (1880); Smith, Cat. Noct. N. Am. p. 331.

♀. Head and thorax grey-white; palpi with black spot on 1st joint, broad band on 2nd joint, and some black on 3rd; frons with lateral black bars; antennæ brown; prothorax with some red-brown; legs irrorated with brown, the tarsi banded with brown; abdomen pale rufous, the ventral surface white. Fore wing grey-white slightly irrorated with brown; subbasal line slight, brown, sinuous, from costa to submedian fold; antemedial line black, slightly waved, oblique to submedian fold, then inwardly oblique; a deep chocolate-brown patch from the cell and vein 2 to inner margin extending from the antemedial to the subterminal line; reniform with very faint white annulus, a faint oblique brown striga above it from costa; postmedial line blackish, slightly bent outwards below costa, then obliquely downcurved and slightly waved, strongly angled outwards above vein 5 and less strongly below it, then incurved and slightly dentate, excurved in submedian interspace;

subterminal line whitish faintly defined on outer side by brown, waved, oblique to below vein 6; a slight waved black line just before termen with small spots in the interspaces. Hind wing yellow; a short brownish fascia below base of cell; a narrow obliquely excurved medial black band, arising below the costa where it expands slightly, its outer edge excurved at vein 5, slightly angled inwards at submedian fold and not reaching inner margin; a terminal black band from costa to submedian fold, its inner edge incurved at vein 2, and a patch at tornus; the termen narrowly yellow towards apex and with small spots between veins 6 and 2; cilia white with faint red-brown spots at veins 6 to 2. Underside of fore wing pale yellow to the obliquely curved dark brown post-medial band narrowing to costa and inner margin, the postmedial area yellowish white, a rather diffused curved brown subterminal band leaving the costa and termen greyish brown; hind wing without the brown fascia below the cell, the medial band extending from upper angle of cell to submedian fold, the subterminal band obsolescent leaving the costa and termen yellowish irrorated with brown.

Hab. U. S. A., Texas, Springfield in Coll. W. Barnes. *Eap.* 48 millim.

7280. *Ephesia streckeri*.

Catocala streckeri, Staud. Stett. Ent. Zeit. 1888, p. 272; id. Rom. Mém. vi. p. 597, pl. 11. f. 9; id. Cat. Lep. pal. p. 249.

Head and thorax black-brown mixed with grey-white, the frons with lateral black bars, the tegulæ blackish at tips; pectus and legs grey and brown, the tarsi blackish ringed with white; abdomen greyish ochreous suffused with red-brown, the crests and a streak on anal tuft darker. Fore wing grey-white largely suffused with dark reddish brown, the basal area suffused with black-brown; subbasal line black, excurved below costa and ending at submedian fold; antemedial line black defined on inner side by whitish, oblique and sinuous to submedian fold and angled inwards at vein 1; reniform obscurely defined by blackish and with a dark brown patch above it on costa; a small heart-shaped spot defined by blackish below end of cell; postmedial line black with some whitish suffusion before it beyond the cell and defined by whitish at costa and inner margin, bent outwards below costa, then obliquely downcurved, acutely angled outwards above vein 5, then inwardly oblique, minutely dentate and excurved at submedian fold; subterminal line diffused, whitish, waved, somewhat oblique from costa to below vein 6; a crenulate blackish terminal line defining whitish spots on termen. Hind wing pale yellow, the base and inner area suffused with red-brown; a black-brown medial band, oblique to vein 5 where its outer edge is excurved; a broad black-brown terminal band, its inner edge incurved at veins 2 and 1; a small yellow patch at apex followed by slight yellow spots on termen in the interspaces to vein 2; cilia yellow chequered with brown at veins 6

to 2. Underside of fore wing brownish white, an oblique brown antemedial shade, a blackish medial band incurved below costa, then obliquely excurved, the terminal area grey-brown with a blackish shade on its inner edge from below costa to vein 4; hind wing whitish, the basal area suffused with brown, the medial and sub-terminal bands fuscous brown and ending at vein 1.

Hab. E. SIBERIA, Amurland, 2 ♂, 2 ♀; JAPAN, Oiwaké (*Pryer*), 1 ♀. *Exp.* 46-54 millim.

7281. *Ephesia jonasi*.

Catocala jonasi, Butl. Cist. Ent. ii. p. 242 (1877); id. Ill. Het. B.M. ii. p. 39, pl. 33. f. 6.

Head and thorax grey-white mixed with dark brown and blackish, the head and tegulæ rather darker; palpi black, whitish towards base; frons with lateral black bars; pectus brownish white; legs white irrorated with fuscous, the tarsi blackish ringed with white; abdomen ochreous suffused with grey-brown, the ventral surface brownish white. Fore wing grey-white irrorated with dark brown; subbasal line slight, black, sinuous, from costa to submedian fold; antemedial line black slightly defined on inner side by white, strong and oblique to submedian fold, then slighter and slightly incurved at vein 1; a minute orbicular defined by brown suffusion; reniform defined by blackish and with blackish centre, its outer edge somewhat dentate, a dark striga above it from costa; a small irregular white spot defined by black below end of cell; postmedial line black defined on outer side by white, strongly bent outwards below costa, then oblique and minutely dentate, acutely angled outwards above and below vein 5, then incurved, minutely dentate and angled outwards at submedian fold; sub-terminal line white defined on outer side by blackish, forming a diffused white patch at middle, oblique and slightly sinuous from costa to below vein 7 where it is met by a slight dark shade from termen, then minutely dentate; a series of black striæ before termen. Hind wing yellow, the hair on inner margin brownish, the base and submedian fold to the medial band with some brown suffusion; an obliquely curved black medial band from costa to vein 1 and a slight spot above inner margin, the band expanding below costa and with its outer edge angled outwards at vein 5; terminal area black, narrowing to tornus, its inner edge excurved at middle and angled inwards at vein 2; the termen with a small yellow patch towards apex and narrow sinuous band below vein 4; cilia yellowish white. Underside of fore wing white, faintly tinged with yellow on basal half, an oblique black-brown band from costa before middle to vein 1, an obliquely curved black medial band, narrowing to inner margin and with its outer edge excurved at vein 5, terminal area blackish, its inner edge oblique to vein 4, a small white apical patch, cilia white; hind wing white, the inner area suffused with yellow and brownish, a slight brown discoidal

lunule conjoined above to the medial band which is narrower towards costa.

Hab. JAPAN, Fushiki (*Leech*), 1 ♀, Nikko (*Leech*), 1 ♀, Yokohama (*Jonas, Pryer*), 2 ♂, 3 ♀ type. *Exp.* 70–78 millim.

7282. *Ephesia prægna*x.

*Catocala prægna*x, Wlk. xiii. 1213 (1857); Butl. Ill. Het. B.M. iii. p. 25, pl. 46. f. 11.

Catocala oblitterata, Mén. Enum. Mus. Imp. Petrop. p. 159, pl. 17. f. 3 (1857); Staud. Cat. Lep. pal. p. 249.

Catocala esther, Butl. Cist. Ent. ii. p. 243 (1877); id. Ill. Het. B.M. ii. p. 40, pl. 33. f. 9.

Head and thorax bright red-brown mixed with some ochreous; pectus greyish tinged with red-brown; tarsi ringed with white; abdomen orange-yellow, the crests and anal-tuft tinged with rufous, the ventral surface ochreous white. Fore wing white tinged with yellow and thickly irrorated with red-brown, the antemedial area suffused with black; subbasal line rather diffused, dark brown, curved, from costa to submedian fold; antemedial line indistinctly double, dark brown filled in with white at inner margin, sinuous and somewhat oblique; reniform defined by black and with red-brown centre, a dark red-brown shade above it on costa; a small spot defined by black below end of cell, its outer edge somewhat excised, a brown line from it to inner margin; postmedial line black, slightly defined on outer side by white towards costa and inner margin, bent outwards below costa, then obliquely incurved and sinuous, angled outwards above vein 5, then inwardly oblique, dentate and angled inwards at vein 1; subterminal line rather diffused, grey defined on each side by dark brown, waved, somewhat oblique from costa to below vein 6; a crenulate dark brown terminal line defining slight yellow spots on the termen. Hind wing golden yellow, the hair on inner margin brown, a brown streak in base of submedian fold; a rather narrow obliquely curved black medial band from costa to vein 1, its outer edge excurved at vein 5 and submedian fold; a black terminal band, its inner edge incurved at veins 2 and 1; the termen narrowly yellow towards apex, then with slight yellow marks in the interspaces; cilia yellow, chequered with brown at veins 6 to 2. Underside of fore wing yellow, an oblique antemedial brown shade from costa to vein 1, an oblique black medial band narrowing to inner margin, its outer edge slightly excurved at vein 5, terminal area fuscous brown shading to greyish at termen, its inner edge curved; hind wing as above, the basal costal area tinged with rufous, the medial band oblique to submedian fold, the apical patch whitish.

Ab. 1. *oblitterata*. Fore wing with more or less white suffusion on medial area except at middle of costa.

Hab. E. SIBERIA, Amurland, Ussuri; JAPAN, Yezo (*Pryer*), 1 ♂, Shimonoseki (*Leech*), 1 ♂, 1 ♀, Tokio (*Fenton*), 2 ♂, 1 ♀, Yokohama (*Jonas, Strickland*), 1 ♂, 3 ♀ type *esther*, Kiushiu, 1 ♂;

COREA; N. CHINA (*Fortune*), 1 ♂ type; C. CHINA, Kiukiang (*Pryer, Pratt*), 3 ♂, 3 ♀; W. CHINA, Ta-chien-lu (*Pratt*), 1 ♂. *Exp.* 54–62 millim.

*7283. *Ephesia hetæra*.

Catocala hetæra, Staud. Rom. Mém. vi. p. 592, pl. 12. f. 4 (1892); id. Cat. Lep. pal. p. 249.

Head and thorax brown mixed with grey; abdomen brownish ochreous. Fore wing grey irrorated with brown, the basal area suffused with brown to the antemedial line leaving the veins grey; subbasal line represented by black striæ from costa and cell; antemedial line blackish defined on inner side by grey, oblique, waved; reniform whitish defined by brown and with striga in centre, large and irregularly rounded, an oblique brown bar above it from costa; a small bifid whitish spot defined by dark brown below end of cell; postmedial line black defined on outer side by grey, strongly bent outwards below costa, then oblique and sinuous to below vein 6, then rather oblique and dentate, at vein 1 angled inwards to near middle of wing; subterminal line greyish defined on inner side by brown, strongly dentate; a terminal series of minute pale spots defined on inner side by brown. Hind wing yellow; a brown fascia on inner area; a brown fascia in submedian interspace from base to the medial blackish band, which is oblique to vein 5, then excurved, and terminates at submedian fold; terminal area black-brown leaving a yellow patch at apex, its inner edge oblique to vein 3 and angled inwards at submedian fold; cilia yellowish white, chequered with brown at veins 6 to 2.

Hab. E. SIBERIA, Amurland. *Exp.* 54 millim. This species is unknown to me.

7284. *Ephesia cratægi*. (Plate CC. fig. 16.)

Catocala cratægi, Saunders, Can. Ent. viii. p. 72 (1876); Smith, Cat. Noct. N. Am. p. 334.

Catocala mira, Grote, Can. Ent. viii. p. 230 (1876); id. Ill. Essay, p. 70, pl. 4. f. 43; Smith, Cat. Noct. N. Am. p. 335.

Catocala blandula, Hulst, Bull. Brooklyn Ent. Soc. vii. p. 38 (1884).

Head and thorax grey-white mixed with red-brown; palpi with the 2nd joint blackish except at tip; frons with lateral black bars; tegulæ with red-brown band near tips, the patagia with blackish lines near edges; pectus and legs white, the fore and mid tibiæ with black bars near extremities, the tarsi blackish ringed with white; abdomen grey suffused with rufous, the ventral surface white. Fore wing grey-white suffused in parts with rufous and slightly irrorated with black, the antemedial area with oblique band of rufous suffusion; subbasal line black, angled outwards below costa and ending at subbasal fold where there is a slight wedge-shaped black mark beyond it followed by a slight black streak;

antemedial line black, strong, very oblique to submedian fold and slightly angled inwards at vein 1, a white shade beyond it from costa to median nervure; reniform with its centre defined by brown and with white annulus, an oblique red-brown bar above it from costa; a small white spot defined by brown and with some rufous in centre below end of cell; postmedial line blackish, bent outwards below costa, then oblique and slightly sinuous, acutely angled outwards above and below vein 5, then incurved, angled outwards at submedian fold, where there is a black streak on it, and angled inwards on vein 1 to the antemedial line, a rufous band beyond it; subterminal line white, dentate, oblique from costa to below vein 6; the terminal area with slight dark streaks on the veins and in the interspaces and a slight oblique shade from termen below apex; a series of slight blackish points just before termen. Hind wing orange-yellow, the inner area suffused with red-brown; a dark brown fascia in submedian fold to the obliquely curved black medial band from costa to vein 1, its inner edge incurved at end of cell and its outer edge excurved at vein 5; a black terminal band, its inner edge incurved at vein 2 and excurved at submedian fold; the termen with small yellow patch at apex followed by slight marks in the interspaces; cilia whitish, chequered with brown at veins 6 to 2 and towards tornus. Underside of fore wing white, the basal half tinged with yellow, an oblique brown antemedial shade from costa to submedian fold, an obliquely curved blackish medial band, its inner edge incurved at end of cell, terminal area blackish shading to grey at termen, its inner edge curved; hind wing as above but the basal and postmedial costal areas and the apical patch whitish.

Ab. 1. *blandula*. Larger; fore wing with almost the whole basal area dark brown, a brighter red-brown band beyond the postmedial line.

Ab. 2. *mira*. Fore wing without brown suffusion on basal and inner areas and with slight rufous band beyond the postmedial line.

Hab. CANADA (*Saunders*), 2 ♂ type, Ontario, Orillia (*Bush*), 1 ♂; U.S.A., Northern, Eastern, and Southern States, New York (*Double-day*), 1 ♂, 1 ♀, Evans Center (*Grote*), 4 ♂, 5 ♀, Florida, Kansas (*Snow*), 2 ♂, 2 ♀, type *mira*, New Mexico, Albuquerque (*Oslar*), 1 ♂, Arizona, Nogales (*Oslar*), 2 ♂, 2 ♀. *Exp.* 44-45 millim.

Larva. *Saunders*, Can. Ent. viii. p. 72.

Greenish ash-colour, varying considerably; warts generally tipped with red; 8th somite with a dull red prominence; fringes rosy. Food-plant, *Crataegus*.

7285. *Ephesia pretiosa*. (Plate CC. fig. 17.)

Catocala pretiosa, Lintn. Can. Ent. viii. p. 121 (1876); Smith, Cat. Noct. N. Am. p. 334.

Head and thorax white mixed with some red-brown and black; palpi with the 2nd joint blackish except at tip; frons with lateral

black bars; an angled black line between antennæ; tegulæ with blackish patches near tips, the patagia with black scales near edges; pectus and legs white, the fore and mid tibiæ irrorated with brown and with black bands near extremities, the tarsi black ringed with white; abdomen yellowish rufous, the ventral surface white. Fore wing bluish white irrorated with dark brown, the terminal area mostly suffused with red-brown; subbasal line black, angled outwards below costa and ending at submedian fold where there is a wedge-shaped black mark beyond it; a patch of deep red-brown suffusion in and below the cell before the antemedial line, which is black, strong, oblique and slightly sinuous to submedian fold, then slighter and angled inwards at vein 1; reniform rounded, its centre slightly defined by brown, a brown spot above it on costa; a small spot slightly defined by brown below end of cell; post-medial line black, slightly bent outwards below costa, then obliquely downcurved, acutely angled outwards above and below vein 5, then incurved, angled outwards at submedian fold where there is a black streak on it, then angled inwards at vein 1; subterminal line indistinct, whitish, defined on inner side by rufous and on outer by brown marks, slightly waved and somewhat oblique from costa to below vein 5; an oblique red-brown shade from termen below apex; a series of blackish points before termen. Hind wing orange-yellow, the inner area tinged with red-brown; a dark brown fascia in submedian fold to the obliquely curved black medial band from costa to vein 1, constricted at discal fold and with its outer edge excurved at vein 5; a black terminal band, its inner edge oblique to vein 4, incurved at vein 2 and excurved at submedian fold; the termen with a narrow yellow patch at apex, then slight marks in the interspaces; cilia white, chequered with brown at veins 6 to 2 and towards tornus. Underside of fore wing with the basal half yellow, an oblique brown antemedial shade, an obliquely curved black-brown medial band, its inner edge incurved at discal fold, followed by a whitish band, the terminal area blackish shading to grey at termen, its inner edge curved; hind wing as above, but the basal costal area and postmedial area to vein 5 whitish.

Hab. U.S.A., New York, 1 ♂, Rhode I., 1 ♂, Pennsylvania, 1 ♂, 2 ♀. *Exp.* 40-50 millim.

7286. *Ephesia præclara*. (Plate CC. fig. 18.)

Catocala præclara, Grote & Rob. Proc. Ent. Soc. Phil. vi. p. 25, pl. iv. f. 4 (1866); Smith, Cat. Noct. N. Am. p. 332.

Catocala manitoba, Beutenm. Ent. News Philad. xix. p. 54 (1908).

Head and thorax bluish white mixed with rufous; palpi rufous; frons with lateral black bars; tegulæ with red-brown band near tips; patagia with some black scales near edges; pectus and legs white, the fore and mid tibiæ irrorated with brown, with black streaks at base and bars near extremities, the tarsi blackish ringed with white; abdomen whitish tinged with rufous, the basal crests red-brown, the anal tuft with fuscous patch, the ventral surface

white. Fore wing bluish white tinged in parts with rufous, the veins with slight blackish streaks; subbasal line slight, dark, angled outwards below costa and ending at submedian fold, where there is a slight wedge-shaped dark patch beyond it; some rufous on inner margin before the antemedial line, which is double, rufous and black-brown, oblique and slightly sinuous to submedian fold and incurved at vein 1; a dentate red-brown striga from middle of costa; reniform with white annulus defined by brown, its centre defined by red-brown; a whitish spot faintly defined by brown below end of cell; postmedial line red-brown, bent outwards below costa, then obliquely downcurved, acutely angled outwards above and below vein 5, then incurved, angled outwards at submedian fold and inwards at vein 1, a rufous band beyond it obsolescent at middle; subterminal line blue-white and rather diffused, obliquely incurved from costa to below vein 6, then slightly waved; an oblique red-brown shade from termen below apex; a series of black-brown striae before termen. Hind wing orange-yellow; a diffused red-brown fascia in submedian interspace to the blackish medial band which arises below costa, is incurved below the cell, then excurved to submedian fold and bent inwards to vein 1 where it terminates; a blackish terminal band from costa to below vein 2 and a patch at vein 1, the inner edge of the band angled inwards at vein 2; the termen narrowly yellow towards apex, then with slight yellow marks in the interspaces; cilia white, chequered with brown at veins 6 to 2. Underside of fore wing whitish, tinged with yellow on basal half, a black-brown medial band oblique to submedian fold where it is angled outwards, then bent inwards and narrowing to inner margin, terminal area black-brown shading to whitish at termen, its inner edge curved; hind wing as above, but paler, the costal area slightly irrorated with brown, the fascia in submedian fold obsolescent.

Ab. 1. *manitoba*. Fore wing somewhat browner.

Hab. CANADA, Manitoba, Cartwright (*Heath*), 1 ♂, Westbourne (*Wallis*), 1 ♂, 2 ♀, Stoney Mts. (*Wallis*), 1 ♀; U.S.A., Eastern States, New York, 3 ♂, 4 ♀. *Exp.* 44-50 millim.

*7287. *Ephesia dulciola*. (Plate CCI. fig. 1.)

Catocala dulciola, Grote, Papilio, i. p. 5 (1881); Smith, Cat. Noct. N. Am. p. 334.

♀. Head and thorax white mixed with deep red-brown; palpi with red-brown patch at side of 2nd joint; antennæ red-brown with a blackish line between their bases; tegulæ with black line near base and red-brown band near tips; pectus and legs white mixed with red-brown, the tarsi brown ringed with white; abdomen whitish, dorsally suffused with pale red-brown. Fore wing white irrorated with red-brown, the medial area with some faint greenish suffusion, the terminal area suffused with red-brown; a black-brown streak above base of vein 1 and a subbasal mark on

inner margin; subbasal line slight, brown, angled outwards below costa and ending at submedian fold; antemedial line double, dark red-brown, oblique to submedian fold and incurved at vein 1; reniform with white annulus, its centre faintly defined by brown, an oblique dark shade above it from costa and some dark suffusion beyond it; a white spot faintly defined by brown below end of cell; postmedial line indistinct, red-brown, slightly bent outwards below costa, then obliquely downcurved, slightly angled outwards above and below vein 5, then incurved, and excurved in submedian interspace; subterminal line white, defined on inner side by red-brown and on outer by the red-brown suffusion, waved, rather oblique from costa to vein 6; the veins of terminal area with slight dark streaks; a slightly sinuous brown line just before termen; cilia intersected with brown at the veins. Hind wing yellow; a brown fascia in submedian fold from base to the obliquely curved rather narrow black medial band which does not reach the inner margin, expanding below costa, and with its outer edge excurved at vein 5; a terminal black band from costa to submedian fold connected by a slight bar with a patch at tornus, its inner edge incurved at vein 2; the termen yellow towards apex; a slightly sinuous black line just before termen except towards apex leaving the termen narrowly yellow; cilia white, chequered with brown at veins 6 to 2. Underside of fore wing yellowish white, a faint oblique brown antemedial shade, a dark brown postmedial band oblique to submedian fold, then bent inwards and narrow to inner margin, the terminal area brown narrowing to tornus; hind wing with the medial band obsolescent towards costa, the termen with some yellowish white suffusion.

The right tibia with a single spine between the medial and terminal spurs.

Hab. U.S.A., Ohio, Illinois, Quincy (*Poling*), in Coll. W. Barnes. *Exp.* 46 millim.

7288. *Ephesia grynea*. (Plate CCI. fig. 2.)

Phalæna grynea, Cram. Pap. Exot. iii. p. 29, pl. 208. f. H (1782); Smith, Cat. Noct. N. Am. p. 332.

Catocala polygama, Guen. Noct. iii. p. 105, pl. 16. f. 2 (1852).

Catocala nuptula, Wlk. xiii. 1205 (1857).

Catocala constans, Hulst, Bull. Brooklyn Ent. Soc. vii. p. 36 (1884).

Head and thorax greenish grey; palpi rufous; frons whitish tinged with rufous above; tegulæ rufous except at base, the prothorax with narrow rufous band, the metathorax with rufous patch; pectus and legs white, the tibiæ tinged with brown, the tarsi blackish ringed with white; abdomen rufous, the ventral surface white. Fore wing greenish grey slightly tinged in parts with pale rufous; subbasal line blackish, angled outwards below costa and ending at submedian fold; antemedial line represented by a series of blackish points with some rufous at costa, excurved at middle and above inner margin where there is some rufous before it; a

brown striga at middle of costa; reniform with ill-defined whitish annulus, its centre defined by red-brown; traces of a small spot defined by whitish below end of cell; postmedial line black-brown, bent outwards below costa, then obliquely downcurved, acutely angled outwards above and below vein 5, then incurved, excurved at submedian fold and very strongly incurved at vein 1 to near the antemedial line, some rufous before it at inner margin and a rufous band beyond it obsolescent except on inner area; subterminal line whitish, rather diffused, somewhat oblique from costa to below vein 6, then slightly waved; a series of blackish points before termen with some rufous beyond them. Hind wing orange-yellow; a diffused black-brown fascia in submedian fold to the black medial band, which arises below costa and is excurved from vein 5 to submedian fold where it terminates; a black terminal band, its inner edge oblique to vein 4, then angled inwards at vein 2 and excurved at submedian fold; the termen narrowly yellow towards apex, then with slight yellow marks in the interspaces; cilia white, chequered with brown at veins 6 to 2. Underside of fore wing white, the basal half tinged with yellow, a slight oblique antemedial brown shade from costa to vein 1, an oblique blackish medial band ending at vein 1, its inner edge incurved at end of cell and its outer edge slightly excurved at middle, terminal area blackish shading to brownish grey at termen, its inner edge oblique to vein 4, then sinuous; hind wing as above but the costal area whitish irrorated with brown, the postmedial area whitish to vein 5, the termen whitish irrorated with brown to vein 2.

Ab. 1. *constans*. Hind wing black except a yellow spot at base and two others at middle of wing.

Hab. U.S.A., Eastern and Central States, Massachusetts, New York, 3 ♂, 3 ♀, type *nuptula*, Rhode I., 1 ♀, Ohio, Columbus, 1 ♀, Kansas (*Snow*), 2 ♂. *Exp.* 46-54 millim.

Larva. Kæbele, Bull. Brooklyn Ent. Soc. iv. p. 22; Coquillett, x. p. 184.

Silvery grey with reddish shading especially in front; 11th somite with rust-red prominence; prolegs red above; head dark with two whitish dorsal lunules edged behind with reddish. Food-plants: Apple and Plum.

7289. *Ephesia alabamæ*. (Plate CCI. fig. 3.)

Catocala alabamæ, Grote, Proc. Ac. Nat. Sci. Phil. 1875, p. 427; Smith, Cat. Noct. N. Am. p. 332.

Head and thorax purplish grey mixed with some rufous; palpi white towards base, the 2nd joint with black-brown band and white ring at extremity; frons with a black bar at middle; antennæ blackish towards base; prothorax with rufous bar, the metathorax with rufous patch; pectus and legs white, the tibiæ irrorated with brown, the tarsi blackish ringed with white; abdomen pale rufous, whitish at base, the ventral surface whitish tinged with rufous. Fore wing purplish grey irrorated and in parts suffused with rufous;

subbasal line black, angled outwards below costa and ending at submedian fold; antemedial line blackish defined on inner side by rufous, strong and oblique to submedian fold, emitting a minute streak on subcostal nervure, on inner area slight and incurved at vein 1; reniform defined by whitish, an oblique rufous mark before it from costa; postmedial line blackish, slightly bent outwards below costa, then oblique and slightly sinuous, angled outwards above and below vein 5, then incurved and slightly waved, excurved at submedian fold, then strong and strongly angled inwards at vein 1, a rufous band beyond it; subterminal line rather diffused, grey-white, waved, somewhat oblique from costa to below vein 6, a black streak beyond it in submedian fold; a series of black points before termen. Hind wing orange-yellow; some brown suffusion in base of submedian interspace; medial band black, forming a patch below costa, excurved from vein 5 to submedian fold, then bent inwards and ending near inner margin; a terminal black band from costa to just below vein 2 and a patch at vein 1, the inner edge of the band angled inwards at vein 2; the termen narrowly yellow towards apex, then with slight yellow marks in the interspaces; cilia yellow at base, white at tips, chequered with brown at veins 6 to 2. Underside of fore wing with the basal half yellow, the costa greyish, an obliquely curved blackish medial band, its inner edge sinuous and confluent with a discoidal lunule defined by blackish, followed by a whitish band, terminal area blackish shading to grey at termen, its inner edge curved, cilia chequered white and fuscous; hind wing as above but the postmedial area whitish to vein 5, the terminal band confluent with the patch at vein 1.

Hub. U.S.A., Alabama, 1 ♀ type, Texas, Springfield, 1 ♂, New Mexico, Albuquerque (*Oslar*), 2 ♂, 1 ♀. *Exp.* 42-46 millim.

*7290. *Ephesia titania*.

Catocala titania, Dodge, Ent. News Philad. xi. p. 472 (1900) Dyar, Cat. Lep. N. Am. p. 231.

Head and thorax greenish grey; abdomen yellow. Fore wing grey suffused with moss-green, the lines indistinct; antemedial line slight, brown, oblique to median nervure, then obsolete; two dark points on medial part of costa; reniform faintly defined and placed on a patch of slight dark suffusion; postmedial line very indistinct, bent outwards below costa, then oblique and sinuous, angled outwards above vein 5 and slightly below it, then incurved and strongly angled inwards on vein 1; subterminal line very indistinct, whitish, dentate. Hind wing bright yellow; medial band narrow, black, oblique to vein 5 and inwardly oblique below vein 2, meeting at submedian fold a black streak from base, then slight; a terminal black band from costa to below vein 2, its inner edge excurved and angled inwards at vein 2, an elliptical patch on vein 1; the termen narrowly yellow towards apex; cilia yellow at base, white at tips,

intersected with black at the veins. Underside of fore wing yellow, an oblique black postmedial band narrowing to inner margin, the terminal area black shading to greyish at termen; hind wing with the costal area brownish white, on postmedial area extending to vein 3, the streak in submedian fold absent, the medial band not extending to costa.

Hab. U.S.A., Missouri, Louisiana. *Exp.* 37 millim. This species is unknown to me.

7291. *Ephesia puella*.

Catocala puella, Leech, P. Z. S. 1889, p. 551, pl. 53. f. 5.

♂. Head and thorax grey mixed with fuscous; pectus and legs whitish tinged with brown; abdomen grey dorsally suffused with ochreous yellow and irrorated with fuscous, the ventral surface white. Fore wing grey suffused and slightly irrorated with fuscous; subbasal line black, excurved below costa and ending at submedian fold; antemedial line black, excurved in cell and submedian fold; reniform incompletely defined by black and with some blackish in centre; postmedial line black, bent outwards below costa, then oblique to above vein 5 where it is angled outwards, then curved downwards to below vein 3 and upwards to median nervure near origin of vein 2, then oblique and angled outwards in submedian fold, some pale grey in its sinus below end of cell; a very indistinct grey subterminal line, oblique from costa to below vein 6; a series of slight blackish spots before termen. Hind wing orange-yellow; a diffused brown streak in base of submedian fold; a narrow black medial band oblique towards costa, interrupted just above lower angle of cell, expanding into a spot at vein 5, then curved and ending at vein 1; terminal area black, its inner edge incurved at vein 2 and angled inwards at vein 1; the termen narrowly yellow at apex; cilia yellow at base, white at tips. Underside of fore wing yellow, a black-brown medial band slightly incurved at discal fold, the terminal area grey-brown narrowing to tornus; hind wing as above, but without the streak in submedian fold.

Hab. COREA, Gensan (*Leech*), 1 ♂ type. *Exp.* 48 milim.

7292. *Ephesia andromache*. (Plate CCI. fig. 4.)

Catocala andromache, H. Edw. Ent. Am. i. p. 50 (1885); Smith, Cat. Noct. N. Am. p. 336.

♂. Head and thorax red-brown mixed with black and some whitish scales; pectus brownish white; legs whitish and brown, the tarsi black ringed with whitish; abdomen yellow tinged with brown, the ventral surface white tinged with ochreous. Fore wing grey thickly irrorated with dark brown and tinged in parts with ochreous; subbasal line black, from costa to submedian fold; antemedial line double, blackish, oblique, sinuous; reniform defined

by blackish, irregular, a small black spot above it on costa; an oblique elliptical whitish spot defined by blackish below end of cell; postmedial line blackish with a small spot at costa, bent outwards below costa, then oblique and downcurved, angled outwards above and below vein 5, then incurved, dentate, and at vein 2 connected with the spot below end of cell; traces of a dark waved subterminal line, oblique from costa to below vein 6; a crenulate blackish line before termen with small yellow spots beyond it in the interspaces. Hind wing yellow; some brown suffusion at base and on inner area; a narrow black band from middle of costa, oblique to submedian fold, then bent inwards to vein 1 where it terminates, its outer edge angled outwards at vein 5; a black subterminal band from costa to just below vein 2 and a bar towards tornus, the band expanding towards costa, its inner edge obliquely curved, its outer dentate to termen between veins 6 and 2; cilia chequered with blackish at middle. Underside of fore wing pale yellow, a faint oblique brownish antemedial shade from below costa to vein 1, an obliquely curved medial band ending in a point on vein 1, a curved subterminal band, the area beyond it ochreous irrorated with fuscous; hind wing as above but without brown on basal and inner areas.

Hab. U.S.A., California, Arizona, Gila Co. (*Poling*), 1 ♂. *Exp.* 54 millim.

7293. *Ephesia flavescens*. (Plate CCI. fig. 5.)

Catocala flavescens, Hmps. Moths Ind. ii. p. 440 (1894).

♂. Head and thorax grey mixed with brown and blackish; palpi with some white on inner side towards base; tarsi blackish with pale rings; abdomen pale greyish rufous, the ventral surface whitish tinged with rufous. Fore wing grey tinged with red-brown and thickly irrorated with dark brown; subbasal line black, sinuous, from costa to submedian fold; antemedial line indistinctly double, blackish, oblique, sinuous, angled inwards at vein 1; reniform obscurely defined by blackish and with some blackish in centre, some blackish above it on costa; a small whitish spot defined by blackish below end of cell; postmedial line black, bent outwards below costa, then obliquely downcurved, angled outwards above vein 5, then oblique and dentate; subterminal line very indistinct, whitish defined on inner side by a blackish mark from costa, then faintly on outer side by fuscous and minutely dentate; a crenulate blackish terminal line defining minute yellowish white spots at the extremities of the veins; cilia yellowish white with a brown line near base. Hind wing yellow, the inner area suffused with red-brown; a fuscous black medial band, oblique to submedian fold, then bent inwards to above inner margin, expanding into a patch at middle; the terminal area fuscous black to submedian fold and with patch at vein 1, its inner edge indented by streaks at veins 4, 3 and angled inwards at vein 2; a yellow apical patch and slight

marks on termen in the interspaces to vein 2; cilia yellowish white with brown marks at veins 6 to 2. Underside of fore wing yellow, the costa brown, an oblique brown shade from costa before middle to vein 1, a blackish medial band narrowing to inner margin and with its outer edge excurved at vein 5, terminal area brown with curved inner edge; hind wing as above.

Hab. KASHMIR (*Pilcher*), 1 ♂; PUNJAB, Kulu, Sultanpur (*G. Young*), 1 ♂, Simla (*Harford*), 2 ♂ type. *Exp.* 64-66 millim.

7294. *Ephesia butleri*. (Plate CCI. fig. 6.)

Catocala butleri, Leech, Trans. Ent. Soc. 1900, p. 534.

♂. Head and thorax dark brown mixed with reddish brown and grey; palpi whitish at base; frons with blackish bar; pectus and legs white tinged with brown, the fore tibiae at extremity and the tarsi banded black and white; abdomen yellow-brown, the extremity grey-brown. Fore wing grey tinged with greenish and irrorated slightly with white, the terminal area purplish grey tinged with brown; the basal area with some black-brown suffusion; subbasal line black, waved, from costa to submedian fold, a slight white streak below it on vein 1 with black mark above it; antemedial line black defined on inner side by whitish, oblique, sinuous; reniform slightly defined by blackish and with black mark on its outer edge; a pale oblique shade from middle of costa to submedian fold, with an irregular spot slightly defined by blackish on it below end of cell with a sinuous line from it to inner margin; postmedial line black, defined on outer side by whitish at costa and towards inner margin, bent outwards below costa, then oblique and sinuous, acutely angled outwards above and below vein 5 with a prominent black mark in the lower tooth, then incurved and waved, at vein 2 connected with the spot below end of cell; subterminal line double, dark, dentate, oblique from costa to below vein 6; a series of blackish points before termen. Hind wing orange-yellow; a diffused black-brown fascia in submedian fold to the medial band and the hair on inner margin brown; a black band oblique from middle of costa to submedian fold, then bent inwards to inner margin, its outer edge excurved below costa and angled outwards at vein 5; terminal area black, its inner edge excurved at vein 4 and submedian fold, angled inwards at vein 2 and incurved at vein 1, the yellow of postmedial area being almost broken up into three patches; a small yellow apical patch followed by a series of yellow points on termen with the cilia whitish beyond them. Underside of fore wing blackish brown, the basal area and costa to the oblique yellow medial band yellow, a yellow postmedial band, oblique from costa to vein 4; hind wing as above but the black markings reduced especially the fascia in submedian fold, the medial band not reaching inner margin.

♀. Head, thorax, and fore wing darker, the last purple-brown

with hardly any greenish suffusion, the medial shade pure white except at costa, the postmedial line defined on outer side by pure white at costa and towards inner margin.

Hab. W. CHINA, Kwei-chow, 1 ♂ type, Pu-tsu-fang, 1 ♀. *Exp.* 74 millim.

***7295. *Ephesia eminens*.**

Catocala eminens, Staud. Rom. Mém. vi. p. 594, pl. 12. f. 5 (1892); id. Cat. Lep. pal. p. 249.

Head and thorax brown mixed with greyish; abdomen brownish ochreous. Fore wing brownish ochreous suffused with brown; subbasal line represented by blackish striæ from costa and cell; antemedial line double, brown filled in with brownish ochreous and defined on inner side by dark brown suffusion, strongly excurved in the interspaces and angled inwards on the veins, excurved to middle of inner margin; an oblique dark brown shade from middle of costa to the postmedial line between veins 6 and 3; reniform indistinctly defined by blackish, large; an oblique sinuous line from origin of vein 2 to inner margin; postmedial line blackish defined on outer side by whitish, strongly bent outwards below costa, then highly dentate to vein 3, then bent inwards to origin of vein 2 where it is bidentate, then very strongly angled outwards in submedian fold and slightly excurved above inner margin; a pale curved subterminal line with brown spots beyond it in the interspaces. Hind wing orange-yellow, the inner margin dark brown; a black-brown fascia in submedian interspace from base to the medial black-brown band, which is oblique from costa to submedian fold then bent inwards and ending at vein 1, its outer edge excurved below vein 5; terminal area black-brown, its inner edge excurved at middle and slightly angled inwards at veins 2 and 1; cilia yellowish white chequered with brown at veins 6 to 2 and brown towards tornus.

Hab. E. SIBERIA, Ussuri. *Exp.* 70 millim. This species is unknown to me.

7296. *Ephesia mirifica*.

Catocala mirifica, Butl. Cist. Ent. ii. p. 243 (1877); id. Ill. Het. B.M. ii. p. 39, pl. 33. f. 7.

Head and tegulæ grey mixed with black-brown, the thorax grey-white tinged with red-brown; palpi dark brown, white at base and at extremity of 2nd joint; frons white below and with black medial line; tegulæ with slight dark line near base and red-brown lines at middle and tips, the prothorax with narrow red-brown band; pectus and legs white tinged with yellow, the tibiæ irrorated with brown, the tarsi blackish ringed with white; abdomen yellow tinged with rufous, the ventral surface yellowish white. Fore wing grey-white slightly tinged with red-brown and

irrorated with dark brown, a large red-brown patch from costa above end of cell to apex extending down to vein 4; subbasal line black, excurved below costa and ending at vein 1; antemedial line slight, dark defined on outer side by whitish on inner half, angled outwards below costa, then excurved and angled inwards at vein 1; reniform deep red-brown defined by diffused blackish; traces of a rather quadrate spot faintly defined by brown below end of cell; postmedial line black on costal half, faint on inner half, slightly bent outwards below costa, then oblique and slightly sinuous, acutely angled outwards above and below vein 5, then inwardly oblique, dentate, excurved at submedian fold and strongly angled inwards at vein 1; subterminal line diffused, whitish, waved, oblique from costa to below vein 6; a series of blackish points before termen. Hind wing golden yellow; a diffused red-brown fascia in submedian fold to the narrow black medial band, which is oblique to submedian fold, then bent inwards and ending at vein 1, its outer edge slightly excurved at vein 5; a terminal black band from costa to just below vein 2 and a patch at vein 1, the inner edge of the band oblique to vein 4 and incurved at vein 2; the termen with small yellow apical patch followed by slight marks in the interspaces to vein 2; cilia yellow with brown patch between veins 6 and 4. Underside of fore wing yellow, the costa brownish, an oblique brown antemedial shade from below costa to vein 1, its oblique black medial band bent inwards and narrowing to inner margin, the terminal area blackish, its inner edge curved, the apex slightly whitish; hind wing as above, but the inner area tinged with red-brown, the terminal band conjoined to the patch at vein 1.

Hab. JAPAN, Oiwaké (*Pryer*), 2 ♀, Tokio (*Fenton*), 1 ♀, Yokohama (*Jonas, Pryer, Manley*), 2 ♂, 4 ♀ type. *Exp.* 56-68 millim.

7297 *Ephesia largetaui*.

Catocala largetaui, Oberth. Ét. Ent. vi. p. 22, pl. viii. f. 8 (1881).

Head and thorax grey tinged with red-brown; palpi with the 2nd joint black except at base and with white ring at tip; the 3rd joint black in front; frons white below and with black bar at middle; tegulæ with black line near base and black tips; pectus white tinged with brown; legs grey irrorated with fuscous, the tarsi black ringed with white; abdomen grey suffused with rufous, the ventral surface white tinged with rufous. Fore wing grey slightly tinged with red-brown and irrorated with dark brown, a patch of dark red-brown suffusion from costa above end of cell to apex extending down to vein 4; a curved black subbasal striga from costa; antemedial line slight, dark defined on inner side by whitish, oblique, sinuous; reniform deep red-brown defined by diffused blackish; traces of a whitish spot faintly defined by brown below end of cell, its outer edge somewhat excised; postmedial line blackish, slightly bent outwards below costa, then oblique and

sinuous, acutely angled outwards above and below vein 5, then inwardly oblique, dentate, excurved in submedian fold and strongly angled inwards at vein 1; the terminal area more strongly tinged with red-brown; subterminal line rather diffused, grey, waved, oblique from costa to below vein 6; a series of blackish points before termen. Hind wing golden yellow, the hair on inner margin brownish; a diffused red-brown fascia in submedian fold to the rather narrow black medial band, which is oblique to submedian fold, then bent inwards and ending at vein 1; a black terminal band from costa to just below vein 2 and a patch at vein 1, the inner edge of the band oblique to vein 4 and incurved at vein 2; a small yellow patch at apex; cilia yellow chequered with brown at veins 6 to 2. Underside of fore wing pale yellow, the costa brown, an oblique brown antemedial shade from below costa to vein 1, an oblique black medial band, bent inwards and narrowing to inner margin, its outer edge excurved at vein 5, the terminal area blackish, its inner edge curved, the apex slightly greyish; hind wing as above, but the inner area tinged with red-brown, the terminal band conjoined to the patch at vein 1.

Ab. 1. Fore wing wholly suffused with fuscous brown.

Hab. N.W. CHINA, Wei-cheng, 1 ♂; W. CHINA, Omei-shan, 1 ♂, 1 ♀, Pu-tsu-fang, 1 ♂, 1 ♀, Nitou, 2 ♀, Kwei-chow, 1 ♂, 1 ♀, Ta-chien-lu (*Pratt*), 2 ♀. *Eap.* 54-66 millim.

7298. *Ephesia desdemona*. (Plate CCI. fig. 7.)

Catocala desdemona, H. Edw. *Papilio*, ii. p. 15 (1882); Smith, *Cat. Noct.* N. Am. p. 337.

♂. Head and thorax red-brown mixed with blackish, grey, and some white; pectus brownish white; legs brown and whitish, the tarsi blackish with pale rings; abdomen fulvous yellow, the anal tuft tinged with rufous, the ventral surface ochreous white. Fore wing ochreous white tinged in parts with pale greenish and thickly irrorated with dark brown and red-brown; subbasal line black, waved, from costa to submedian fold; antemedial line double, the inner line red-brown, the outer black and expanding into a spot at costa, oblique, sinuous; reniform with red-brown centre and whitish annulus defined by black, a dark shade above it on costa; an oblique elliptical whitish spot tinged with rufous and defined by black below end of cell; postmedial line black, bent outwards below costa, then oblique and almost straight, acutely angled outwards above and below vein 5, then incurved, waved, at vein 1 angled inwards and produced to a short streak, a red-brown shade beyond it; subterminal line blackish, dentate, oblique to below vein 6 and forming stronger teeth above and below vein 5; a series of black striæ before termen defined on outer side by whitish and with a short streak before the striga below vein 7; cilia brown mixed with whitish. Hind wing orange-yellow; a narrow black medial band, oblique to below vein 2, then bent inwards to near

inner margin, its outer edge angled outwards at vein 5; a curved black subterminal band, its outer edge crenulate and produced to termen at veins 6 to 2. at submedian fold reduced to a black line; cilia chequered with blackish at middle. Underside of fore wing orange-yellow with an oblique fuscous antemedial shade from below costa to vein 1, an obliquely curved medial black band, its outer edge slightly angled outwards at vein 5, a curved subterminal band, the apical area ochreous white with a series of black points before termen; hind wing as above.

Hab. U.S.A., Arizona, Pinal Co., Sta. Catalina Mts., 1 ♂. *Exp.* 66 millim.

Larva on Scrub Oak.

7299. *Ephesia separans*.

Catocala separans, Leech, P. Z. S. 1889, p. 552, pl. 53. f. 6.

♂. Head and thorax grey-white mixed with reddish brown and black-brown; palpi with the 2nd joint blackish towards extremity; frons with lateral black bars, a black bar between antennæ; tegulæ with black-brown medial band, the prothorax with black-brown band, the patagia with black lines near edges; pectus and legs ochreous white, the latter irrorated with brown; abdomen yellow tinged with rufous, the ventral surface brownish white. Fore wing grey-white thickly irrorated with dark brown; subbasal line represented by black spots at costa and below the cell; some black-brown suffusion before middle of the antemedial line, which is double, the inner line indistinct, the outer strong, black, rather irregularly sinuous and somewhat oblique; reniform whitish defined by black and with a brown striga in centre, an oblique dark bar above it from costa; a small rather irregular white spot defined by black below end of cell; postmedial line black, bent outwards below costa, then obliquely downcurved, acutely angled outwards above vein 5, then inwardly oblique, minutely dentate and strongly angled inwards at vein 1; subterminal line greyish defined on each side by brown, strongly dentate, somewhat oblique from costa to below vein 6, with slight dark streaks in the interspaces from it to the series of black points before termen which are defined on outer side by whitish points. Hind wing golden yellow; a brownish streak in base of submedian fold; a narrow obliquely curved black medial band from costa to submedian fold with a dark spot below it on vein 1; a black terminal band narrowing to tornus, its inner edge slightly waved and angled inwards at vein 1; the termen with small yellow patch at apex followed by slight marks in the interspaces; cilia white, chequered with brown at veins 6 to 2 and brown towards tornus. Underside of fore wing with the basal half yellow, a brown antemedial shade and fascia on inner area, an obliquely curved black medial band narrowing to inner margin, its outer edge somewhat excurved at vein 5, followed by a white band, the terminal area blackish, its inner edge curved, the termen

greyish except towards tornus; hind wing as above, but without the brown streak in submedian fold, a black spot on upper discocellular conjoined to the medial band, the apical patch white.

Hab. JAPAN, Fushiki (*Leech*), 1 ♂ type, Nagahama (*Leech*), 1 ♂.
Exp. 54-60 millim.

*7300. *Ephesia davidi*.

Catocala davidi, Oberth. Ét. Ent. vi. p. 22, pl. viii. f. 7 (1881).

Head and thorax brown mixed with grey; abdomen yellowish. Fore wing grey suffused with brown and with slight dark irroration; antemedial line double, brown filled in with ochreous, oblique, sinuous; an oblique dark striga from middle of costa; reniform faintly defined by blackish, small; an indistinct spot defined by blackish below end of cell; postmedial line blackish, slightly bent outwards below costa, then oblique to below vein 6, then somewhat inwardly oblique and dentate, a diffused pale shade tinged with red-brown beyond it; a series of dark points just before termen. Hind wing orange-yellow; blackish fasciæ in submedian interspace and above inner margin from near base to the medial black band, which is formed by a fascia below antemedial part of costa, then interrupted at discal fold below which there is a patch with a band from it to above inner margin; terminal area black from costa to vein 2 leaving some yellow at apex, and a patch at vein 1; cilia chequered with brown at veins 6 to 2 and at vein 1. Underside of fore wing yellow with oblique sinuous black medial band from below costa to submedian fold, and terminal band broad at costa narrowing to tornus and interrupted at submedian fold; hind wing with black spot below middle of costa connected with a discoidal spot, band just beyond the cell from vein 5 to 1 and clavate mark above inner margin.

Hab. N. CHINA (*David*). *Exp.* 54 millim. This species is unknown to me.

*7301. *Ephesia rutha*.

Catocala rutha, Wileman, Trans. Ent. Soc. 1911, p. 239, pl. 30. f. 3.

♀. Head and thorax dark brown mixed with grey-white; palpi white at base and with the 2nd joint white in front; frons with white lines at sides; tegulæ with white medial line; pectus and legs yellowish white, the tibiæ irrorated with brown and with black bands at extremities, the tarsi banded with black; abdomen yellowish, dorsally suffused with red-brown. Fore wing grey-white irrorated with dark brown, the base and terminal area suffused with dark brown; subbasal line diffused, dark, excurved below costa and ending at submedian fold; antemedial line blackish, waved and somewhat oblique, expanding into a small spot at costa, a diffused waved dark band before it from costa to vein 1; reniform defined by blackish and with blackish lunule in centre; medial line

blackish and oblique to reniform, indistinct, inwardly oblique, and sinuous from cell to inner margin; postmedial line black, with small spot at costa, bent outwards below costa, then minutely dentate, oblique to vein 6, then incurved and excurved at submedian fold; subterminal line grey-white, waved, somewhat oblique to vein 6; an indistinct crenulate dark terminal line with small yellowish spots beyond it in the interspaces; cilia chequered brown and whitish. Hind wing deep yellow; the inner margin brownish; a black-brown fascia in submedian fold; an oblique blackish band from costa before middle to submedian fold, then bent inwards and narrow to inner margin, its outer edge excurved beyond lower angle of cell; terminal area black to below vein 2, then connected by a slight line with a wedge-shaped spot on vein 1, its inner edge angled inwards at vein 2; a yellow patch at apex, then small spots in the interspaces; cilia yellow. Underside of fore wing yellow, an oblique brown antemedial shade from costa to submedian fold, an oblique black postmedial band from costa to submedian fold where it is slightly curved inwards, its outer edge incurved below costa; terminal area black, its inner edge oblique to vein 4, the costa yellow at apex.

Hab. JAPAN, Hondo, type ♂ ♀ in Coll. Wileman. *Exp.* 62 millim.

7302. *Ephesia inconstans*.

Catocala inconstans, Butl. Ill. Het. B. M. vii. p. 76, pl. 132. ff. 2, 3 (1889); Hmps. Moths Ind. ii. p. 439.

Head and thorax grey mixed with brown, the head tinged with black; palpi whitish in front towards base; frons white at sides and with black lateral bars; tegulae with black medial line; pectus brownish white, the tarsi blackish ringed with white; abdomen grey-brown, the ventral surface whitish tinged with brown. Fore wing grey tinged with red-brown and irrorated with blackish, the antemedial and terminal areas rather browner; subbasal line black, sinuous, from costa to submedian fold; antemedial line double, the inner line indistinct, the outer black, oblique and rather diffused to submedian fold and angled inwards at vein 1; the medial area suffused with whitish except towards inner margin; reniform defined by black and with some red-brown in centre, its outer edge dentate, a dark striga above it from costa; a large whitish spot defined by black below end of cell; postmedial line black, bent outwards below costa, then oblique and slightly sinuous, acutely angled outwards above and below vein 5, then oblique and dentate, at vein 1 angled inwards as a strong black streak to near antemedial line; subterminal line whitish slightly defined on outer side by brown and on both sides towards costa, obliquely down-curved from costa to below vein 7, then waved; a faint oblique dark shade from termen below apex and slight black spots below veins 7 and 6; a series of black striae before termen slightly defined on outer side by whitish; a fine whitish line at base of

cilia. Hind wing yellow, the hair on inner margin brown, the costal area and submedian interspace suffused with brown to the black medial band which is obliquely curved from costa to above inner margin, expanding into a patch beyond lower angle of cell; terminal area black, its inner edge excurved at middle and submedian interspace and angled inwards at vein 2; the termen with yellow apical patch, then slight yellow marks in the interspaces to vein 2; cilia whitish with brown marks at veins 6 to 2, brown towards tornus. Underside of fore wing yellow, the costa and an oblique shade from costa before middle to vein 1 brown, an oblique medial black band narrowing to inner margin and with its outer edge excurved at vein 5, followed by a white band, terminal area fuscous brown; hind wing as above, but the medial band narrow towards costa, the postmedial area to discal fold and the apical patch whitish, a blackish discoidal point, no brown on costal and inner areas.

Hab. KASHMIR, Jalaori Pass (*Leech*), 1 ♂, Zalmiur Pass (*McArthur*), 1 ♂, 1 ♀; PUNJAB, Kulu, Sultanpur (*G. Young*), 1 ♂, Dharmśāla (*Hocking*), 2 ♂, 3 ♀ type, Simla (*Harford*), 1 ♂, Murree (*Harford*), 2 ♂, 2 ♀. *Exp.* 66-88 millim.

7303. *Ephesia dotata*. (Plate CCI. fig. 8.)

Catocala dotata, Wlk. xiii. 1212 (1857); Hmps. Moths Ind. ii. p. 440.

Head and thorax grey and yellowish mixed with dark brown; pectus and legs brownish white, the tibiæ and tarsi blackish, the latter with pale rings; abdomen yellow-brown, the ventral surface whitish. Fore wing with the basal half rufous suffused with black-brown, the postmedial area whitish suffused with rufous, the terminal area dark brown, paler at apex; subbasal line black, from costa to submedian fold; antemedial line double, black, the inner line less distinct, oblique, sinuous, a more or less prominent white mark beyond it in cell; reniform obscurely defined by blackish and with its centre defined by blackish, a dark mark above it on costa; a more or less prominent whitish spot defined by black below end of cell, connected by a sinus on vein 2 with the postmedial line which is black, slightly defined on outer side by whitish, bent outwards below costa, then oblique, acutely angled outwards above and below vein 5, then oblique, minutely dentate, somewhat bidentate at submedian fold and angled inwards at vein 1; subterminal line whitish defined on outer side by brown, dentate, oblique from costa to below vein 6; a slight oblique dark shade from termen below apex; a series of black points before termen slightly defined on outer side by whitish. Hind wing golden yellow, the basal and inner areas suffused with red-brown; a blackish medial band, oblique to submedian fold, then bent inwards to inner margin, its outer edge excurved at vein 5; a blackish terminal band, its inner edge excurved below vein 5 and at submedian fold and incurved at veins 2 and 1 to near the medial band;

the termen with yellow patch at apex, then with slight yellow marks in the interspaces; cilia pale yellow with faint brownish marks at veins 6 to 2. Underside of fore wing yellowish white, an oblique fuscous brown shade from costa before middle to the obliquely curved blackish medial band with its outer edge excurved at vein 5, at submedian fold, terminal area blackish with a yellow patch at apex, its inner edge curved; hind wing as above, but the costal area yellowish white except at the bands, no brown on basal and inner areas.

Hab. PUNJAB, Murree (*Harford*), 1 ♀, Simla (*Harford*), 2 ♂, 2 ♀, Dharmśāla (*Hocking*), 3 ♂, 7 ♀; SIKHIM, 1 ♂. *Exp.* 46–60 millim. Type † in Mus. Oxon.

Larva. Ochreous mottled with purplish red; lateral line blackish; the abdominal somites with subdorsal pairs of small pointed prominences on anterior part of somites and pairs of larger pointed prominences on posterior part of somites, the 8th somite with a hump between these prominences and the 11th somite with them placed on a ridge; a sublateral line of fringes. Food-plant, *Quercus alba*.

7304. *Ephesia nubila*. (Plate CCI. fig. 9.)

Catocala nubila, Butl. Trans. Ent. Soc. 1881, p. 196.

Head white; palpi with blackish patch at side of 2nd joint, the 3rd joint blackish except at tip; frons with lateral blackish bars; vertex of head with blackish patch; antennæ brown; tegulæ brown with white bands at middle and tips; thorax brown mixed with greyish, the prothorax with whitish band; pectus and legs white, the tibiæ and tarsi banded with blackish; abdomen yellow tinged with red-brown, the ventral surface white tinged with red-brown towards extremity. Fore wing grey-white suffused with red-brown, the veins with blackish streaks; subbasal line blackish, excurved below costa and ending at submedian fold; antemedial line brown, double, with blackish patch at costa, oblique, sinuous, a slight whitish shade beyond it from costa to median nervure; reniform obscurely defined by blackish and with some brown in centre, an oblique dark bar above it from costa; an irregular spot obscurely defined by brown below end of cell; postmedial line blackish, bent outwards below costa, then oblique and slightly sinuous, acutely angled outwards above and below vein 5, then inwardly oblique, dentate, and strongly angled inwards at vein 1; subterminal line diffused, whitish defined on each side by red-brown, dentate, slightly incurved below costa; a series of blackish points before termen defined on outer side by yellowish; cilia whitish at base and tips. Hind wing yellow, diffused brownish fasciæ on costal area, in submedian interspace and on inner margin to the blackish medial band, which is oblique to submedian fold, then narrow and bent inwards to above inner margin, its outer edge angled outwards at vein 5; a blackish subterminal band, its inner edge incurved at discal fold, angled inwards at veins 2 and 1

and excurved at middle and submedian fold, its outer edge crenulate to termen and cilia at veins 6 to 2; the termen with yellow patch at apex; cilia yellowish white. Underside of fore wing yellow, an oblique brown shade from costa before middle to vein 1, an obliquely curved blackish medial band ending above vein 1, its outer edge slightly excurved at vein 5, a curved blackish subterminal band; hind wing as above, but with brown fasciæ on basal area, the medial band very narrow and ending at vein 1, the subterminal band not crenulate to termen between veins 6 to 2.

Ab. 1. Fore wing with the medial area suffused with fuscous brown except towards costa and on the pale patch in and below cell.

Ab. 2. Fore wing with the medial area suffused with black except at middle of costa and beyond the cell.

Hab. JAPAN, Hakodaté (*Leech*), 3 ♂, 1 ♀, Oiwaké (*Pryer*), 1 ♂, 1 ♀, Tokio (*Maries*), 2 ♂ type. *Exp.* 60–64 millim.

7305. *Ephesia musmi*, n. sp. (Plate CCI. fig. 10.)

Catocala prægnaæ, *Leech*, Trans. Ent. Soc. 1900, p. 534 (nec *Wlk.*).

Head and thorax grey mixed with dark brown; palpi whitish at base; lower part of frons whitish; a black line between antennæ; tegulæ with blackish medial band, the patagia with some black near edges; pectus white tinged with brown; legs white irrorated with brown, the tarsi blackish ringed with white; abdomen grey suffused with rufous, the ventral surface brownish white. Fore wing grey suffused with brown and fuscous, the antemedial area suffused with black; subbasal line represented by small blackish spots at costa and median nervure; antemedial line black, bent outwards below costa, then somewhat oblique and irregularly waved, strongly angled outwards above inner margin; reniform defined by rather diffused black, irregular, an oblique black shade above it from costa; a spot defined by black below end of cell, connected by a sinus on vein 2 with the postmedial line, which is black, bent outwards below costa, then obliquely downcurved and sinuous, acutely angled outwards above and below vein 5, then inwardly oblique, dentate, angled inwards at vein 1; subterminal line rather diffused, greyish defined on outer side by black, strongly dentate, somewhat oblique from costa to below vein 6, with slight black streaks in the interspaces from it to the series of black points before termen. Hind wing golden yellow, the hair on inner margin dark brown; a dark brown fascia in submedian fold to the rather narrow black medial band, which is oblique from costa to submedian fold, then bent inwards to inner margin, its outer edge excurved at vein 5; a rather narrow black subterminal band, its inner edge incurved at vein 2, its outer edge crenulate to termen at veins 6 to 2 and 1; cilia with slight dark marks at veins 6 to 2. Underside of fore wing yellow, an oblique brown antemedial shade from costa to vein 1, an obliquely curved

black medial band narrowing to inner margin, its outer edge excurved at vein 5, terminal area blackish, its inner edge curved, the apex with some yellowish white, the interspaces towards termen with slight whitish streaks, the cilia whitish at base; hind wing as above, but the basal costal area tinged with brown, the fascia in submedian fold obsolescent, the medial band not reaching inner margin.

Hab. COREA, Gensan (*Leech*), 1 ♂, 1 ♀ type. *Exp.* 58 millim.

7506. *Ephesia persimilis*. (Plate CCI. fig. 11.)

Catocala persimilis, Warr. P. Z. S. 1888, p. 314; Hmps. Moths Ind. ii. p. 440.

♀. Head and thorax grey mixed with black and brown; palpi whitish at base; pectus and legs brownish white, the tibiae irrorated with black, the tarsi black ringed with white; abdomen pale reddish brown, the ventral surface whitish. Fore wing grey tinged with brown and irrorated with blackish; subbasal line black, excurved below costa and ending at submedian fold; antemedial line double, the inner line indistinct, oblique, waved, an oblique whitish shade from beyond it at costa to the postmedial line at vein 2 followed by a fuscous shade, then a whitish patch before the angle of the postmedial line; reniform indistinctly defined by black, irregular, its outer edge dentate; an obliquely curved whitish spot below end of cell, defined by black and confluent with the postmedial line, which is black defined on outer side by whitish, bent outwards below costa, then oblique and slightly sinuous, angled outwards above and below vein 5, then oblique, dentate, at vein 2 forming the sinus below end of cell and angled outwards at submedian fold; an obscure blackish wedge-shaped mark from costa before the very indistinct whitish subterminal line defined on outer side by blackish and somewhat oblique from costa to below vein 6; a waved blackish line before termen with slight whitish spots beyond it; a fine whitish line at base of cilia. Hind wing yellow, the basal and inner areas suffused with brown; a black medial band oblique from costa to submedian fold, then bent inwards to inner margin, its outer edge angled outwards at vein 5; a subterminal black band, broad at costa, its inner edge oblique to below vein 4, angled inwards at vein 2, the band interrupted at submedian fold and followed by a patch at tornus, its outer edge waved to termen between veins 6 and 2 leaving small yellow spots on the termen; cilia chequered yellow and black between veins 6 and 2. Underside of fore wing yellow, the costal and inner areas whitish to beyond middle, an oblique brownish antemedial shade from below costa to vein 1, an obliquely curved black medial band narrowing to a point at inner margin, the terminal area blackish with some grey on apical area and termen; hind wing as above, but the costal area whitish to beyond middle.

Hab. PUNJAB, Thundiāni (*Yerbury*), 1 ♀ type. *Exp.* 60 millim.

7307. *Ephesia micronympha*. (Plate CCI. fig. 12.)

Catocala micronympha, Guen. Noct. iii. p. 102 (1852); Smith, Cat. Noct. N. Am. p. 332.

Catocala fratercula, Grote & Rob. Proc. Ent. Soc. Phil. vi. p. 24, pl. iv. f. 3 (1866); Streck. Lep. Rhop. & Het. p. 37, pl. v. f. 8.

Catocala atarah, Streck. Lep. Rhop. & Het. p. 97, pl. xi. ff. 10, 11 (1874).

Catocala gisela, Meyer, Bull. Brooklyn Ent. Soc. ii. p. 96 (1880).

Catocala jacquenetta, H. Edw. Bull. Brooklyn Ent. Soc. iii. p. 60 (1880).

Catocala timandra, H. Edw. Bull. Brooklyn Ent. Soc. iii. p. 60 (1880).

Catocala hero, H. Edw. Papilio, iv. p. 125 (1884).

Catocala ouwah, Poling, Can. Ent. xxxiii. p. 128 (1901).

Head and thorax white mixed with rufous; palpi black and white; frons with lateral black bars; antennæ blackish; pectus and legs white, the tibiæ irrorated with brown, the fore and mid tibiæ with black streak at base and bars near extremities, the tarsi black ringed with white; abdomen rufous, the ventral surface white tinged with rufous. Fore wing whitish suffused with rufous and irrorated with black-brown, the veins of terminal half slightly streaked with blackish; subbasal line black, excurved below costa and ending at vein 1; antemedial line indistinct, blackish, oblique and sinuous to submedian fold, incurved at vein 1, an oblique whitish shade beyond it from costa to median nervure defined on outer side by black; reniform very indistinctly defined by blackish; an oblique whitish spot defined by blackish below end of cell; postmedial line black with a whitish patch before it beyond the cell, slightly bent outwards below costa, then obliquely downcurved, acutely angled outwards above and below vein 5, then inwardly oblique and minutely waved, angled outwards at submedian fold and inwards at vein 1; subterminal line whitish, minutely waved, somewhat incurved below costa; a slight oblique dark shade from termen below apex; a series of black points before termen defined on outer side by whitish. Hind wing golden yellow; blackish fasciæ on costal area, in submedian fold, and on inner margin to the blackish medial band, which is oblique from costa to submedian interspace, then bent inwards to inner margin, its outer edge slightly incurved at vein 5; terminal area black from costa to submedian fold where it is usually connected by a slight bar with a patch at vein 1, its inner edge angled inwards at vein 2; the termen very narrowly yellow towards apex, then with slight yellow marks in the interspaces; cilia white chequered with brown at veins 6 to 2. Underside of fore wing with the basal half yellow, the costa and a slight fascia below the cell brownish, an obliquely curved black medial band narrowing to inner margin and with its outer edge excurved at vein 5, followed by a white band tinged with yellow on inner half, terminal area blackish, its inner edge curved, some whitish at apex, cilia chequered white and blackish; hind wing as above, but the fasciæ on basal area obsolescent, the basal and postmedial costal areas whitish irrorated with brown.

Ab. 1. *jacquenetta*. Fore wing tinged with olive, the lines indistinct, a dark apical shade.

Ab. 2. *hero*. Fore wing with a large white patch on basal half of medial area from costa to median nervure and on the whole medial area below the cell and vein 2.

Ab. 3. *timandra*. Fore wing dirty white, the basal area olivaceous, the lines distinct; hind wing with the medial band narrower.

Ab. 4. *ouval*. Fore wing with a diffused dark fascia along median nervure only separated from the oblique fascia from termen below apex by the pale spot below end of cell.

Ab. 5. *gisela*. Fore wing suffused with black to the postmedial line.

Hab. CANADA; U.S.A., Massachusetts, New York (*Meske*), 2 ♂, Rhode I., Illinois, Georgia, Florida, 1 ♂, Kansas (*Snow*), 2 ♂, 2 ♀, Texas, Dallas (*Boll*), 3 ♀, Colorado, California, Arizona. *Exp.* 52-54 millim.

Larva. Coquillett, *Papilio*, i. p. 7,

Ash-grey; dorsal area dark grey defined by a series of piliferous spots; a stigmatal series of black spots; 8th somite with a slight prominence; two anterior pairs of prolegs smaller than the others; head pale grey edged above and at sides by black. Food-plants, Live and Burr Oak.

7308. *Ephesia connexa*. (Plate CCI. fig. 13.)

Catocala connexa, Butl. Trans. Ent. Soc. 1881, p. 196.

♂. Head, thorax, and abdomen grey-white mixed with fuscous; palpi white at base and in front, the 2nd and 3rd joints black at sides; frons white with a pair of black spots above; tegulae with blackish band near tips; pectus and legs white, the tibiae and tarsi irrorated with fuscous and banded with black; abdomen yellow-brown with slight pale segmental lines, the ventral surface pale yellow, white at base. Fore wing purplish grey thickly irrorated with black-brown; an oblique sinuous blackish subbasal line from costa to submedian fold; antemedial line blackish, waved, angled inwards on median nervure and vein 1, a waved dark brown shade before it from costa to vein 1; reniform with black-brown centre and ochreous annulus defined by rather diffused black-brown, a rather diffused black-brown medial line interrupted by the reniform; postmedial line blackish, bent outwards below costa, then oblique and sinuous to below vein 6 where it is acutely angled outwards, then incurved and dentate, some ochreous white before it beyond the cell and beyond it between veins 4, 3; a dentate black-brown subterminal line somewhat oblique from costa to below vein 7; a waved dark line just before termen with a series of ochreous white points beyond it; cilia fuscous brown at base, yellowish white at tips. Hind wing orange-yellow; diffused black-brown fasciae in submedian interspace and on inner margin; a black-brown medial band oblique from costa to submedian fold, then bent inwards to inner margin, its outer edge somewhat angled

outwards at vein 5; a subterminal black-brown band, expanding at costa, its inner edge oblique to vein 4, expanding into patches at veins 2 and 1 connected with the medial band, its outer edge waved to termen between veins 6 and 2. Underside of fore wing pale yellow, an oblique antemedial brown shade from below costa to vein 1, a medial blackish band oblique to submedian fold and narrowing to inner margin, terminal area blackish, its inner edge oblique to vein 4, some yellowish on costa towards apex; hind wing as above, but without brown on inner margin, the termen with more yellow and the subterminal and medial bands not connected at vein 2.

Hub. JAPAN, Tokio (*Maries*), 1 ♂ type. *Exp.* 58 millim.

7309. *Ephesia nymphæa*.

Noctua nymphæa, Esp. Schmett. iv. pl. 105. f. 4 (1787); Hübn. Eur. Schmett., Noct. f. 339; Dup. Léop. Fr. Suppl. iii. p. 543, pl. 46. f. 2; Herr.-Schäff. Schmett. Eur., Noct. ff. 589, 590; Staud. Cat. Lep. pal. p. 249. *Noctua vestalis*, Geyer, Eur. Schmett., Noct. ff. 841-3 (1841). *Catocala conjux*, Frr. Neue Beitr. vi. p. 137, pl. 569. f. 2 (1852). *Catocala thalamos*, Schultz, Ent. Zeit. xxii. p. 169 (1909).

Head and thorax red-brown mixed with whitish and black palpi ochreous white at base; frons with lateral black bars; pectus

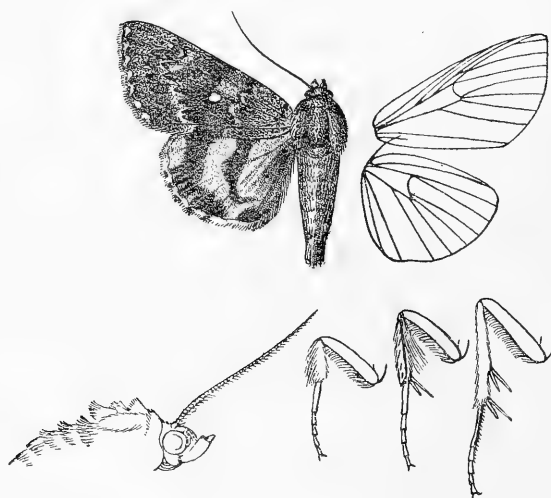


Fig. 6.—*Ephesia nymphæa*, ♂. $\frac{1}{4}$.

ochreous white; tarsi blackish ringed with white; abdomen yellow tinged with rufous, the ventral surface ochreous white. Fore wing grey-white suffused with red-brown and irrorated with fuscous; subbasal line blackish, excurved below costa and ending at submedian fold; antemedial line black, indistinctly double towards

costa, oblique, sinuous, some white suffusion beyond it from costa to below the cell; reniform obscurely defined by blackish and with an oblique blackish bar above it from costa; a somewhat triangular white spot defined by black below end of cell; postmedial line black slightly defined on outer side by white and with some whitish suffusion before it beyond the cell, bent outwards below costa, then obliquely downcurved, angled outwards above vein 5, then inwardly oblique, dentate and strongly angled inwards at vein 1; subterminal line whitish, minutely dentate, slightly oblique from costa to below vein 7; a series of blackish points before termen with yellow points beyond them on termen; cilia with yellow lines at base and tips. Hind wing yellow, the inner area tinged with red-brown; an obliquely curved blackish medial band, ending above inner margin, its outer edge excurved at vein 5; a blackish terminal band from costa to just below vein 2, often connected by a slight bar in submedian interspace with a blackish patch at vein 1, its inner edge excurved at middle and incurved at vein 2; the termen with a yellow apical patch, then slight yellow marks in the interspaces; cilia yellowish white chequered with brown between veins 6 and 2. Underside of fore wing pale yellow, an oblique curved blackish medial band ending above vein 1, its outer edge excurved at vein 5, the terminal area brown, ending at vein 1, its inner edge curved; hind wing as above but pale yellowish, the medial band more oblique to submedian fold, the terminal band obsolescent.

Hab. FRANCE, Pyrenees, Leech Coll.; GERMANY; SPAIN, Léon, Piedrahita (*Chapman*), Andalusia, Leech Coll.; CENTR. ITALY; ALGERIA; DALMATIA, Leech Coll.; ARMENIA, Caucasus, 1 ♂, 1 ♀, Leech Coll.; ASIA MINOR, Bithynia, Lydia, Taurus; CYPRUS, Nicosia (*Bucknill*), 1 ♂. *Exp.* 42-62 millim.

Larva. Kirby, Butt. & Moths Eur. p. 277; Hfsm. Raup. p. 150, pl. 37. f. 16.

Yellowish brown mottled with red-brown; stigmal line dark grey; ventral surface yellow with pale red spots between the claspers; warts and lateral fringes yellowish; head red-brown mottled with yellow. Food-plants: *Quercus suber*, *ilex*, etc.

7310. *Ephesia duplicata*. (Plate CCI. fig. 14.)

Catocala duplicata, Butl. Cist. Ent. iii. p. 135 (1885).

Head and thorax grey-white mixed with black-brown; palpi with the 1st and 2nd joints white, the latter with black band towards tips; frons white below and with black bar above; tegulae with blackish medial band; pectus and legs white, the tibiae irrorated with brown, the fore and mid tibiae with some black at base and bars near extremities, the tarsi black ringed with white; abdomen pale rufous, the ventral surface white tinged with rufous. Fore wing bluish white thickly irrorated with iron-brown, the antemedial area with some brown suffusion on costal half;

subbasal line black, sinuous, ending at submedian fold; antemedial line black, defined on inner side by white with brown before it, forming a small patch at costa, then oblique, sinuous, and excurved above inner margin, a whitish shade beyond it except at inner margin; reniform incompletely defined by black, small, an oblique dark bar above it from costa; a spot defined by blackish below end of cell; postmedial line black, bent outwards below costa, then oblique and sinuous, acutely angled outwards above vein 5, then inwardly oblique and dentate, an obscure red-brown band beyond it; subterminal line somewhat diffused, white defined on outer side by red-brown, dentate, slightly oblique from costa to below vein 6; a series of small black spots defined on outer side by white before termen. Hind wing golden yellow, some red-brown suffusion in basal half of submedian fold and on inner margin; a rather narrow black medial band, obliquely curved from costa to submedian fold, then bent inwards to near inner margin, its edges slightly sinuous; a black terminal band narrowing to tornus, its inner edge slightly incurved at vein 2; the termen very narrowly yellow towards apex, then with slight yellow marks in the interspaces; cilia yellow at base, white at tips, chequered with brown at veins 6 to 2 and towards tornus. Underside of fore wing with the basal half yellow, an oblique brown antemedial shade, a black medial band oblique to submedian fold, its outer edge slightly excurved at middle, followed by a whitish band, terminal area blackish, its inner edge oblique from costa to vein 4, cilia chequered white and blackish; hind wing as above, but the costal area whitish except at the bands, the fascia in submedian fold extending to the medial band.

Ab. 1. Fore wing with curved black-brown shade from middle of costa to lower angle of cell and thence to termen below apex.—Yezo.

Hab. JAPAN, Yezo (*Pryer*), 1 ♂, Oiwaké (*Leech*), 1 ♂, 1 ♀, Tsuruga (*Leech*), 1 ♂, Nagahama (*Leech*), 1 ♂, Yokohama (*Pryer*), 1 ♂ type. *Exp.* 50–56 millim.

7311. *Ephesia diversa*.

Noctua diversa, Geyer, Eur. Schmett., Noct. ff. 737–40 (1827); Frr. Neue

Beitr. pl. 155. ff. 1 a, b; Staud. Cat. Lep. pal. p. 250.

Catocala callinympha, Dup. Léop. Fr. Suppl. iii. p. 546, pl. 46. f. 4 (1821).

Catocala umbrata, Schultz, Ent. Zeit. Guben. xx. p. 100 (1906).

Head and thorax white mixed with dark brown and black; tegulæ with black band near tips, which are white; patagia with black streaks near edges; fore tibiæ with black point at base and black and white band at extremity, the tarsi black ringed with white; abdomen yellow tinged with rufous, some whitish at base and brown irroration towards extremity, the anal tuft grey and brown, the ventral surface white irrorated with brown. Fore wing white irrorated and in parts suffused with dark brown and black, the veins streaked with black; subbasal line black, waved, from

costa to submedian fold, where there is a short black streak beyond it; antemedial line double, black, with blackish suffusion before it, oblique, waved, a dark fascia beyond it in submedian fold and a white shade except at inner margin; reniform incompletely defined by black and its centre by fuscous, an oblique black bar above it from costa and the veins beyond it with strong black streaks; a triangular spot defined by black below end of cell; postmedial line black slightly defined on outer side by white, bent outwards below costa, then obliquely downcurved, acutely angled outwards above and below vein 5, then inwardly oblique and dentate, excurved at submedian fold; subterminal line white defined on outer side by black, dentate, oblique from costa to below vein 7, a series of black streaks beyond it in the interspaces ending in points before termen defined on outer side by white. Hind wing yellow, the inner area tinged with red-brown, a dark streak in base of submedian fold; a narrow black medial band, oblique to submedian fold, then slightly bent inwards and ending at vein 1; a black terminal band narrowing to tornus, its inner edge oblique to vein 4 and incurved at vein 2; the termen with some yellow towards apex, then slight yellow marks in the interspaces; cilia brown at base, whitish at tips. Underside of fore wing pale yellowish, an oblique brown antemedial shade, an obliquely curved black medial band narrowing to inner margin, the terminal area black, its inner edge waved and curved, cilia white with some brown at tips; hind wing as above, but the costal area whitish tinged with yellow, the medial band extending indistinctly to inner margin.

Ab. l. umbrata. Fore wing more uniformly suffused with fuscous.

Hab. S. FRANCE; AUSTRIA, Tirol; HUNGARY, Mutzell and D'Emmich Colls.; SPAIN, Andalusia; SICILY; DALMATIA, Frey and Leech Colls.; BALCAN STATES; KHURDISTAN; ASIA MINOR, Bithynia; SYRIA, 1 ♂, Leech Coll. *Exp.* 42-46 millim.

Larva. Kirby, Butt. & Moths Eur. p. 277; Hffin. Raup. p. 150.

Rufous variegated with brown; dorsal line yellowish edged with black; lateral line black; warts black; some yellowish spots at sides; no prominences. Food-plant, Oak. 5.

7312. *Ephesia disjuncta*.

Noctua disjuncta, Geyer, Eur. Schmett., Noct. ff. 741-2 (1833); Dup. Léop.

Fr. Suppl. iii. p. 548, pl. 46. f. 3; Herr.-Schäff. Schmett. Eur., Noct. ff. 236-7; Staud. Cat. Lep. pal. p. 250.

Noctua separata, Frr. Neue Beitr. vi. p. 43, pl. 508. f. 4 (1852).

Catocala luctuosa, Staud. Cat. Lep. pal. p. 250 (1901).

Head and thorax grey-white mixed with dark red-brown; frons with lateral black bars; tegulae with black bands at middle and near tips; prothorax with narrow black band; patagia with some black scales near edges; tarsi blackish ringed with white; abdomen pale rufous, the ventral surface whitish mixed with brown. Fore wing grey-white irrorated and in parts suffused with red-brown; subbasal line black, excurved below costa and ending at submedian fold; antemedial line strong, black, excurved below costa and

incurved at vein 1, some red-brown suffusion before it, a whitish shade beyond it from costa to median nervure; reniform with white annulus incompletely defined by black and its centre defined by brown, its outer edge somewhat dentate and with black streaks beyond it on the veins, a brown shade above it from costa; a small triangular white spot defined by black below end of cell; post-medial line black, forming a small spot at costa, bent outwards below costa, then obliquely downcurved, angled outwards above and below vein 5, then incurved and again excurved, strongly angled inwards and with a black streak on it at vein 1, a narrow pale rufous band beyond it; subterminal line white, defined on outer side by dark brown, obliquely incurved from costa to below vein 7, then dentate, the veins and interspaces beyond it with slight black streaks; a crenulate black terminal line defining a series of white points on the termen; cilia with a brown line through them. Hind wing golden yellow, the inner area tinged with red-brown; a narrow blackish medial band, oblique to submedian fold, then bent inwards to inner margin, somewhat dilated beyond lower angle of cell; terminal area blackish brown, narrowing to tornus, its inner edge angled inwards at vein 2 and outwards at submedian fold; cilia whitish chequered with brown except towards apex. Underside of fore wing pale yellowish, an oblique brown antemedial shade, an oblique black medial band, its inner edge incurved at end of cell and its outer edge excurved at middle, terminal area fuscous brown, its inner edge curved, cilia chequered whitish and brown; hind wing as above, but the costal area pale yellowish irrorated with brown to the median nervure and vein 5 except at the bands, a brown discoidal bar.

Ab. 1. *separata*. Hind wing darker.

Ab. 2. *luctuosa*. Hind wing wholly suffused with fuscous.

Hab. DALMATIA, Zeller and Mutzell Colls.; CORFU; GREECE, Leech Coll.; BALKAN STATES; KURDISTAN; ASIA MINOR, Pontus, Bithynia, Lydia, Smyrna, 1 ♂, 1 ♀. Frey and Merlin Colls., Taurus; SYRIA, Beirut, 1 ♂, Zeller Coll.; PALESTINE. *Exp.* 40-46 millim.

7313. *Ephesia eutychea*.

Catocala eutychea, Treit. Schmett. Eur. x. 2, p. 165 (1835); Herr.-Schäff. Schmett. Eur., Noct. f. 447; Staud. Cat. Lep. p. 1. p. 250.

Catocala languida, Herr.-Schäff. Schmett. Eur. ii. p. 407, Noct. ff. 233-9 (1852).

Catocala dotata, Herr.-Schäff. Schmett. Eur. ii. p. 407, Noct. ff. 585-6 (1852).

Catocala mariana, Rmbr. Cat. Lép. S. And. pl. ix. f. 4 (1858).

Head and thorax grey-white mixed with pale brown; frons with lateral black bars; prothorax with narrow blackish band, the patagia with some black scales near upper edge; fore tibiae with black bar at extremity, the tarsi blackish ringed with white; abdomen whitish tinged with rufous. Fore wing grey-white suffused and irrorated with pale red-brown; subbasal line black, excurved below costa and ending at submedian fold; antemedial

line black, slightly defined on inner side by whitish, forming a small spot at costa, then obliquely excurved and incurved at vein 1; reniform faintly defined by blackish and its centre by brown, an oblique dark bar above it from costa; a spot faintly defined by blackish below end of cell; postmedial line blackish, bent outwards below costa, then obliquely downcurved, angled outwards above vein 5, then incurved and again slightly excurved, angled inwards at vein 1; subterminal line very indistinct, whitish slightly defined on outer side by red-brown, obliquely incurved from costa to below vein 6, then waved; a crenulate blackish terminal line; cilia with a whitish line at base. Hind wing yellow, the inner area tinged with red-brown, a blackish medial band, oblique from costa to submedian fold, then bent inwards to above inner margin, narrowing below vein 3; a blackish brown terminal band from costa to below vein 2 connected by a slight bar on termen with a patch at vein 1; the termen with some yellow at apex; cilia white, chequered with brown at veins 6 to 2 and at vein 1. Underside of fore wing yellowish white, the costa brownish, a blackish medial band oblique to submedian fold, then bent inwards and narrowing, its inner edge incurved at end of cell and its outer edge excurved at middle, the terminal area grey-brown, its inner edge curved; hind wing as above but the costal area brownish.

Ab. 1. *dotata*. Hind wing with the medial band more curved and sinuous, not angled outwards in submedian fold.

Hab. SPAIN, Andalusia; DALMATIA; GREECE, Zeller, Frey, Mutzell, D'Emmich, and Merlin Colls.; NAXOS, Merlin Coll.; BALCAN STATES; ? ARMENIA; ASIA MINOR, Pontus, Lydia, Taurus; SYRIA, 2 ♂, Leech Coll., Beirut (*Lederer*), 1 ♀. *Exp.* 38-46 millim.

7314. *Ephesia distorta*.

Catocala distorta, Butl. Ill. Het. B.M. vii. p. 77, pl. 132. f. 4 (1889); Hmps. Moths Ind. ii. p. 441.

Head and thorax red-brown; pectus with grey mixed; tibiae tinged with fuscous, the tarsi black ringed with whitish; abdomen grey-brown tinged with rufous, the ventral surface whitish. Fore wing grey-white suffused and irrorated with red-brown, the medial area rather paler; subbasal line black, excurved below costa and ending at submedian fold; antemedial line black, forming a small patch at costa, then oblique, sinuous; reniform defined by red-brown and with red-brown lunule in centre, an oblique dark bar above it from costa; a spot defined by black below end of cell, connected by a rather wide sinus at vein 2 with the postmedial line, which is black slightly defined on outer side by whitish, forming a small spot at costa, then bent outwards, oblique to vein 5 where it is angled outwards, then inwardly very oblique and very minutely sinuous, forming a black spot above the sinus at vein 2 and angled inwards at vein 1; subterminal line diffused, whitish defined on each side by brown, with a black-brown patch on its inner side at costa, obliquely incurved from costa to below vein 6,

then slightly sinuous; a crenulate blackish terminal line; a dark line near base of cilia. Hind wing golden yellow, the inner area slightly suffused with brown; a rather narrow black medial band, oblique to submedian fold, then bent inwards to inner margin, its outer edge slightly excurved at vein 5; a terminal blackish band from costa to just below vein 2, where it is connected by a slight bar with a patch on vein 1; a yellow patch at apex; cilia yellowish with a brown line through them from apex to vein 2. Underside of fore wing whitish, the costal edge brown, an oblique blackish medial band, a curved blackish subterminal band, the termen with brown irroration at apex; hind wing as above but whitish, the medial band obliquely waved.

Hab. PUNJAB, Kulu (*Hocking*), 5 ♂, 2 ♀ type, Sultanpur (*G. Young*), 3 ♂, 1 ♀. *Exp.* 50-54 millim.

7315. *Ephesia similis*. (Plate CCI. fig. 15.)

Phalæna amasia, Smith & Abbot, Ins. Georgia, ii. p. 179, pl. 90, lower fig. (1797).

Catocala similis, W. H. Edw. Proc. Ent. Soc. Phil. ii. p. 511 (1864); Smith, Cat. Noct. N. Am. p. 333.

Catocala formula, Grote & Rob. Proc. Ent. Soc. Phil. vi. p. 27, pl. iv. f. 5 (1866).

Catocala aholah, Streck. Lep. Rhop. & Het. p. 96, pl. xi. f. 8 (1874).

Catocala isabella, H. Edw. Bull. Brooklyn Ent. Soc. iii. p. 60 (1880).

Head and thorax grey-white mixed with red-brown; palpi white at base and with black patch on 2nd joint; frons with lateral black bars; an angled black-brown line between antennæ; tegulæ with black-brown line near tips; pectus and legs white, the fore and mid tibiæ irrorated with brown, the tarsi black ringed with white; abdomen yellow tinged with rufous, the ventral surface white. Fore wing bluish white suffused and irrorated with reddish brown; subbasal line black, excurved below costa and ending at submedian fold, a black point beyond it above vein 1; a narrow rufous band before the antemedial line, which is black, excurved, incurved at vein 1 and again excurved above inner margin; reniform blue-white defined by blackish and its centre by red-brown, its upper extremity produced, a dark mark above it on costa; a rather irregular spot defined by black below end of cell; postmedial line black defined on outer side by a rufous band, bent outwards below costa, then slightly oblique to above vein 5, where it is slightly angled outwards, then inwardly oblique, excurved above and below vein 5 and angled inwards at vein 1; subterminal line whitish defined on outer side by brown, minutely dentate; an oblique dark shade from termen below apex with some white above it on costal area; a series of small black spots before termen and a terminal series of black striæ; cilia chequered whitish and brown at tips. Hind wing golden yellow, the inner area with some red-brown suffusion, an obliquely curved black medial band from costa to vein 1, its outer edge angled outwards at vein 5; a terminal black band from costa to just below vein 2

and a patch at vein 1, the inner edge of the band incurved at vein 2; the termen very narrowly yellow at apex, then with slight marks in the interspaces; cilia whitish, chequered with brown at veins 6 to 2. Underside of fore wing yellowish white, the costa irrorated with brown, some brownish suffusion before middle in and below the cell, an oblique black-brown medial band, obsolete at inner margin and with its outer edge excurved at vein 5, the terminal area blackish, its inner edge curved, some whitish at apex and a series of slight marks in the interspaces, cilia chequered white and blackish; hind wing as above, but the costal area yellowish white and without the brown on inner area.

Ab. 1. *isabella*. Fore wing whiter and less suffused with brown.

Ab. 2. *aholah*. Fore wing silvery grey, a large black patch beyond the reniform confluent with the oblique apical shade.

Hab. U.S.A., New York, 2 ♂, 2 ♀, Rhode I., Texas. *Exp.* 44-52 millim.

Larua. Smith & Abbot, Ins. Georgia, ii. p. 179, pl. 90.

Greenish grey with protuberance on each segment; dorsal, subdorsal, and stigmatal dark lines; each somite with an oblique lateral line. Food-plant, Pride of India or Oak.

7316. *Ephesia amasia*. (Plate CCI. fig. 16.)

Phalena amasia, Smith & Abbot, Ins. Georgia, ii. p. 179, pl. 90, upper fig. (1797); Westw. Jardine's Nat. Libr. xxxiii. p. 205, pl. 26. f. 3; Smith, Cat. Noct. N. Am. p. 333.

Catocala cordelia, H. Edw. Bull. Brooklyn Ent. Soc. iii. p. 59 (1880).

Catocala virens, French, Can. Ent. xviii. p. 162 (1886).

Head and thorax bluish white mixed with dark red-brown; palpi with the 2nd joint dark brown except at tip; frons with lateral black bars; tegulae with slight brown medial line, the patagia with some black scales near edges; pectus and legs white, the fore and mid tibiae with black streaks near base and bars near extremities, the tarsi black ringed with white; abdomen grey suffused with rufous, the ventral surface white. Fore wing bluish white, the antemedial area suffused with red-brown, the medial area slightly irrorated with rufous, the terminal area irrorated with dark brown; subbasal line black, excurved below costa and ending at submedian fold; antemedial line black, oblique, sinuous, almost obsolete in submedian interspace; reniform defined by some black scales and with its centre defined by blackish, a brown patch above it on costa; faint traces of a small spot defined by brown below end of cell; postmedial line black towards costa, then faint, defined on outer side by white and with bright rufous band beyond it, bent outwards below costa, then waved, obliquely downcurved to above vein 5, where it is angled outwards, then inwardly oblique and with black points at the veins, excurved at submedian fold and angled inwards at vein 1; subterminal line bluish white defined on outer side by black-brown, dentate, angled inwards below costa; a series of minute black spots defined on outer side

by white points before termen and a series of black striæ on termen; cilia rufous mixed with white. Hind wing golden yellow, the inner area suffused with rufous; a narrow black medial band oblique to submedian fold, then bent inwards, its outer edge excurved at vein 5; a terminal black band from costa to just below vein 2 and a patch at vein 1, the inner edge of the band incurved at vein 2; the termen narrowly yellow towards apex; cilia whitish, chequered with brown at veins 6 to 2 and towards tornus. Underside of fore wing with the basal half yellow, a faint brown antemedial shade from below costa to submedian fold, an oblique blackish medial band, bent inwards and narrowing to inner margin, its inner edge incurved at end of cell and its outer edge excurved at vein 5, the terminal area blackish, its inner edge curved, the apex white, a series of slight white marks in the interspaces before termen, cilia chequered white and blackish; hind wing as above, the costal, basal and postmedial areas white, the medial band with its inner edge incurved at discocellulars and ending at submedian fold, the terminal band confluent with the patch at vein 1, the apical patch white.

Ab. 1. *virens*. Fore wing with the medial area white, some olive-green suffusion on antemedial area at costa and inner margin, below end of cell, and on terminal area.

Hab. U.S.A., New York, Illinois, Georgia, 1 ♀, Kansas (*Snow*), 1 ♂. Exp. 46-52 millim.

Larva. Food-plant, Pride of India or Oak.

7317. *Ephesia connubialis*. (Plate CCL fig. 17.)

Catocala connubialis, Guen. Noct. iii. p. 105 (1852); Smith, Cat. Noct. N. Am. p. 334.

Catocala amasia, Streck. Lep. Rhop. & Het. p. 77, pl. ix. f. 12 (nec Smith & Abb.).

Catocala sancta, Hulst, Bull. Brooklyn Ent. Soc. vii. p. 38 (1884).

Head and thorax white mixed with some pale brown and black; palpi white with black patches at sides of joints; frons with lateral black bars; an angled black line between antennæ; tegulæ with blackish medial band, the prothorax with narrow black band, the patagia with some black scales near edges, the metathorax with black patch; pectus and legs white, the fore and mid tibiæ slightly irrorated with brown and with black bars near base and extremities, the tarsi black ringed with white; abdomen yellow tinged with rufous, the ventral surface white. Fore wing white slightly irrorated with red-brown, the antemedial and terminal areas suffused with red-brown; a small black spot at base of cell; sub-basal line black, from costa to submedian fold; antemedial line strong, black, waved, slightly oblique; reniform blackish with white annulus incompletely defined by black, its outer edge somewhat dentate, a blackish and brown patch above it on costa; a white spot defined by black below end of cell, its outer edge

somewhat excised; a dark bar at middle of inner margin; post-medial line black, bent outwards below costa, then oblique and slightly sinuous, angled outwards above vein 5, then inwardly oblique and waved, strongly angled inwards at vein 1, a rufous band beyond it except towards costa where there is a blackish bar; subterminal line black slightly defined on inner side by white, dentate, very slightly incurved below costa; a series of small black spots defined on outer side by whitish before termen. Hind wing golden yellow with blackish fasciæ below costa, in submedian fold, and on medial part of vein 1 before the narrow black medial band, which is oblique to submedian fold, then bent inwards and ending at vein 1, its outer edge slightly excurved at vein 5; a terminal black band from costa to just below vein 2 and a patch at vein 1; a small apical white patch slightly tinged with yellow; cilia white, chequered with brown at veins 6 to 2. Underside of fore wing with the basal half yellow, an oblique black medial band narrowing to inner margin, terminal area black, its inner edge curved, a white apical patch and slight streaks in the extremities of interspaces; hind wing as above, but without the fasciæ on basal area, the basal and postmedial costal areas white.

Hab. U.S.A., Eastern and Southern States, 2 ♂, Georgia. *Exp.* 48 millim.

*7318. *Ephesia triphænoides*.

Catocala triphænoides, Oberth. Ét. Ent. vi. p. 21, pl. viii. f. 5 (1881).

♂. Head and thorax pale violaceous grey; abdomen yellowish. Fore wing pale violaceous grey slightly irrorated with fuscous; subbasal line blackish, slightly angled outwards below costa, then oblique and ending at vein 1; antemedial line blackish, angled outwards below costa, then waved; reniform with its centre and outer edge indistinctly defined by blackish, a small blackish mark above it on costa; postmedial line blackish, slightly bent outwards below costa, then obliquely downcurved to below vein 6, curved to vein 3, then bent inwards and forming a sinus below end of cell, and angled outwards in submedian fold, a slight dark shade beyond it obliquely incurved to below vein 6; subterminal line pale defined on outer side by a fuscous shade, obliquely incurved to below vein 6; cilia chequered with fuscous at base. Hind wing yellow; a blackish band before termen from costa to vein 2, its outer edge slightly waved below vein 6; slight blackish points before termen above and below vein 1. Underside of fore wing yellow, a blackish striga from middle of costa and oblique bar beyond lower angle of cell, a rather diffused curved subterminal band from costa to vein 2, cilia chequered fuscous and yellow; hind wing with the cilia chequered with fuscous at middle.

Hab. N. CHINA, Ngankiak (*David*). *Exp.* 50 millim. This species is unknown to me.

*7319. *Ephesia vallantini*.

Calocala vallantini, Oberth. Ét. Ent. xix. p. 36, pl. vi. f. 53 (1894); Staud. Cat. Lep. pal. p. 250.

♂. Head and thorax grey mixed with brown; abdomen yellowish grey. Fore wing grey; the basal area from costa before middle to middle of inner margin and the terminal area purplish grey tinged with red-brown; subbasal line represented by double brown striæ from costa; antemedial line double, brown, rather oblique, with an oblique dark shade on it in submedian interspace; reniform a slight blackish lunule placed near the inner edge of a patch of purple-grey suffusion extending from costa to vein 3 and defined on outer side by the faint brownish postmedial line which is excurved below costa and oblique below vein 4; subterminal line indistinct, double, dark, excurved below costa, then somewhat oblique; a fine waved black terminal line. Hind wing orange-yellow; a slight dark discoidal lunule; terminal area black, narrowing to a point at tornus and leaving some yellowish on termen at apex and submedian fold; cilia ochreous white, chequered with blackish at veins 6 to 4. Underside of fore wing pale ochreous, a faint oblique brownish antemedial shade from below costa to submedian fold, the terminal area fuscous except at tornus, cilia chequered whitish and fuscous; hind wing ochreous with a faint reddish shade, the terminal area fuscous narrowing to a point at vein 1, cilia chequered ochreous white and fuscous.

Hab. ALGERIA, Bône; TUNIS, Ain Draham (*Faroult*) in Coll. Rothschild. *Exp.* 44 millim.

SECT. II. Thorax clothed with hair with a few scales mixed.

- | | |
|--|----------------------|
| A. Fore wing with the ground-colour leaden grey | <i>columbina</i> . |
| B. Fore wing with the ground-colour not leaden grey. | |
| a. Fore wing grey, the basal area suffused with dark brown. | |
| a ¹ . Fore wing with the antemedial line very oblique from costa to submedian fold, the postmedial line very oblique and slightly dentate between veins 4 and 2 | <i>xarippe</i> . |
| b ¹ . Fore wing with the antemedial line less oblique from costa to submedian fold, the postmedial line less oblique and more dentate between veins 4 and 2. | |
| a ² . Fore wing with the antemedial line strongly angled outwards above inner margin | <i>invasa</i> . |
| b ² . Fore wing with the antemedial line slightly angled outwards above inner margin | <i>fulminca</i> . |
| b. Fore wing pale ochreous, the interspaces suffused with red-brown except on costal area | <i>æstimabilis</i> . |

7320. *Ephesia columbina*. (Plate CCI. fig. 18.)

Catocala columbina, Leech, Trans. Ent. Soc. 1900, p. 535.

Head and thorax leaden grey mixed with black-brown; palpi blackish at sides; frons with lateral black bars; tegulae with black-brown medial patches, the dorsum of thorax mostly black-brown; pectus white, rufous in front and below the wings; fore tibiae irrorated with dark brown and with black bars near tips, the mid tibiae rufous, the tarsi black ringed with white; abdomen grey suffused with red-brown, the anal tuft mostly white, the ventral surface white tinged with rufous. Fore wing leaden grey; a small black spot at base of costa; subbasal line black, excurved below costa and ending at submedian fold; some black-brown suffusion before the antemedial line, which is black defined on inner side by white, expanding into a patch at costa, waved and somewhat oblique, a white shade beyond it from costa to below the cell; reniform blackish with whitish annulus slightly defined by blackish, its outer edge somewhat dentate, a blackish patch above it on costa; a small oblique wedge-shaped whitish spot defined by black below end of cell; an indistinct sinuous dark line arising at vein 6, excurved beyond the cell, then oblique; postmedial line black defined on outer side by white, strong, with spot at costa, bent outwards below costa, then obliquely downcurved, acutely angled outwards above and below vein 5, then inwardly oblique, minutely dentate, excurved at submedian fold and angled inwards at vein 1, a narrow brown shade beyond it expanding at costa followed by a subterminal blue-grey shade with patches of dark suffusion beyond it above and below middle; a series of black points before termen with white points beyond them on termen; cilia brown and whitish. Hind wing orange-yellow, the hair on inner margin brown; black-brown fasciae on costal area and in submedian interspace before the black medial band, which is obliquely curved to submedian fold, then bent inwards and ending at vein 1, its outer edge slightly excurved at vein 5; terminal area black, its inner edge oblique to vein 4 and incurved at veins 2 and 1; the termen narrowly yellow towards apex, then with slight yellow marks in the interspaces; cilia white chequered with blackish at veins 6 to 2 and towards tornus. Underside of fore wing with the basal half pale yellowish, an oblique brown antemedial shade from costa to vein 1, an oblique black medial band narrowing to inner margin, its outer edge excurved at middle followed by a whitish band, terminal area blackish, its inner edge curved, the apex slightly whitish, cilia chequered white and blackish; hind wing as above, but the basal area with slight brown suffusion in submedian interspace, the inner edge of the terminal band evenly curved.

In one specimen there is a single spine on hind tibiae.

Hab. W. CHINA, Omei-shán, 2 ♂, 1 ♀ type, Chang-yang (*Pratt*), 2 ♂, 3 ♀. *Exp.* 58-66 millim.

7321. *Ephesia xarippe*.

Catocala xarippe, Butl. Cist. Ent. ii. p. 243 (1877); id. Ill. Het. B.M. ii. p. 39, pl. 33. f. 8; Staud. Cat. Lep. pal. p. 249.

Head and thorax grey-white suffused with red-brown; palpi with the 2nd joint black, white in front towards base and at extremity; frons white with lateral black bars; tegulæ with blackish lines at middle and tips, the prothorax with dark bar; pectus white tinged with yellow; legs irrorated with brown, the fore and mid tibiæ with black streaks at base and bars near extremities, the tarsi blackish ringed with white; abdomen rufous, the ventral surface white tinged with rufous. Fore wing white suffused in parts with red-brown and irrorated with dark brown, the veins of terminal area with slight blackish streaks, the basal area suffused with red-brown deepening to black-brown before the antemedial line; subbasal line black, excurved below costa and ending at vein 1; antemedial line black, expanding into a patch at costa, then oblique, sinuous, angled outwards above inner margin, an oblique white shade beyond it from costa to below the cell; reniform rather narrow, defined by black and its centre by brown, an oblique dark shade above it from costa and a black patch beyond it; a spot defined by black below end of cell connected by a sinus on vein 2 with the postmedial line, which is black, forming a spot defined on outer side by white at costa, bent outwards below costa, then obliquely downcurved, very acutely angled outwards above and below vein 5, then inwardly oblique, dentate, excurved at submedian fold and strongly angled inwards at vein 1, a blackish patch beyond it on costa; subterminal line rather diffused, white, incurved below costa, dentate above and below vein 5, then minutely waved, an oblique dark shade from termen below apex with blackish streaks on the veins; a crenulate black terminal line. Hind wing yellow, the hair on inner margin brown; a brown fascia in submedian interspace to the obliquely curved blackish medial band from costa to submedian fold, its outer edge angled outwards at vein 5; terminal area black, its inner edge oblique to vein 4 and incurved at veins 2 and 1; the termen narrowly yellow at apex, then with slight yellow marks in the interspaces; cilia white, chequered with brown at veins 6 to 2. Underside of fore wing with the basal half yellowish white, an oblique brown antemedial shade from below costa to vein 1, an oblique black medial band, narrowing to inner margin, its outer edge strongly excurved at middle, terminal area blackish, its inner edge oblique to vein 4, the apex whitish, cilia white at base; hind wing as above but whitish, the inner area tinged with yellow, the costal area irrorated with brown, the fascia in submedian interspace obsolescent.

Hab. JAPAN, Hakodaté, 1 ♀ type, Kioto (*Lewis*), 1 ♀, Nagahama (*Leech*), 2 ♂, 1 ♀, Sendai (*Leech*), 1 ♂, Yokohama (*Manley*), 1 ♀. *Esp.* 60-66 millim.

7322. *Ephesia invasa*. (Plate CCII. fig. 1.)

Catocala invasa, Leech, Trans. Ent. Soc. 1900, p. 531.

♂. Head and thorax grey tinged with brown; palpi with the 2nd joint towards extremity and the 3rd joint blackish; frons with black lateral bars; tegulae with brown medial line and tips, the prothorax with narrow brown band, the patagia with some brown scales near edges; pectus ochreous white; tibiae and tarsi irrorated with fuscous and banded with blackish; abdomen ochreous brown with some dark brown at extremity, the ventral surface ochreous white. Fore wing pale violaceous grey tinged in parts with red-brown and slightly irrorated with dark brown; subbasal line black, angled outwards below costa and ending at median nervure; antemedial line dark brown with red-brown suffusion before it, dilated at costa, very oblique and slightly sinuous, angled outwards above inner margin, an oblique whitish shade beyond it from costa to submedian fold and a red-brown fascia above vein 1; reniform with its centre defined by red-brown, its annulus whitish defined by black, an oblique blackish bar above it from costa and two black streaks beyond it; a spot defined by black below end of cell on the whitish area, connected by a sinus with the postmedial line at vein 2; postmedial line black, bent outwards below costa, then obliquely downcurved, very acutely angled outwards above and below vein 5, then dentate, angled outwards at submedian fold and inwards on vein 1 to near the antemedial line; faint traces of a whitish subterminal line, oblique to below vein 6, then waved; the veins of terminal area slightly streaked with blackish; an oblique brown shade from termen below apex; a series of blackish striae before termen slightly defined on outer side by whitish; cilia brown. Hind wing yellow; a black-brown fascia in submedian interspace from base to the black-brown medial band, which is oblique from costa to submedian fold, then bent inwards and ending at vein 1, its outer edge slightly angled outwards at vein 5; a black subterminal band from costa to below vein 2, its outer edge waved to termen between veins 6 and 2; a spot on termen at vein 1. Underside of fore wing pale yellow, an oblique brown shade from below costa before middle to vein 1, an oblique black postmedial band, slightly angled at submedian fold and narrowing below, its outer edge angled outwards at vein 5, terminal area fuscous brown with some ochreous on termen, narrowing to tornus, its inner edge curved; hind wing as above but with a dark streak in cell and discoidal spot conjoined to the medial band.

♀. Fore wing with much more red-brown suffusion before the antemedial line, the area beyond the cell and postmedial line suffused with brown; hind wing with the medial band extending to inner margin, the subterminal band conjoined by a slight bar to the spot near tornus.

Hab. W. CHINA, Chang-yang (*Pratt*), 1 ♀, Kia-ting-fu, 1 ♂ type. *Exp.* ♂ 60, ♀ 68 millim.

7323. *Ephesia fulminea*.

Phalæna fulminea, Scop. Ent. Carn. p. 206 (1763); Staud. Cat. Lep. pal. p. 249.

Noctua paranympa, Linn. Syst. Nat. ed. xii. p. 842 (1767); Esp. Schmett. iv. pl. 105, ff. 1-3; Hübn. Eur. Schmett., Noct. ff. 336, 601; Godt. Léop. Fr. v. p. 84, pl. 49. f. 3; Fr. Neue Beitr. pl. 527.

Catocala protonympa, Boisdu. Gen. & Ind. Meth. p. 168 (1840); Guen. Noct. iii. p. 103, pl. 15. f. 12.

Catocala koreana, Staud. Rom. Mém. vi. p. 587 (1892).

Head and thorax violaceous grey suffused with red-brown; 2nd joint of palpi with some blackish towards extremity; frons with lateral black bars; tegulæ whitish with two black-brown medial bands, the prothorax with black-brown band; pectus and legs whitish tinged with red-brown, the tibiæ irrorated with brown, the fore tibiæ with black and white band at extremity, the tarsi blackish ringed with white; abdomen rufous, the ventral surface whitish tinged with rufous. Fore wing violaceous grey tinged with red-brown, the basal area suffused with red-brown deepening

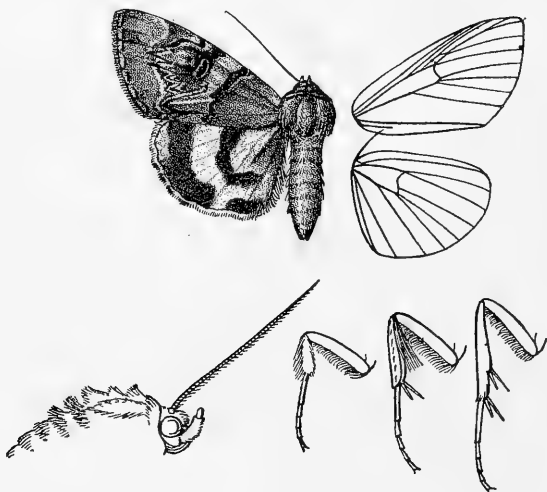


Fig. 7.—*Ephesia fulminea*, ♂. 1,

towards the antemedial line, the outer part of medial area with a red-brown shade; subbasal line black, angled outwards below costa and ending at submedian fold; antemedial line black with a white striga before it at costa, diffused, oblique and slightly sinuous to submedian fold, then waved, an oblique whiter shade beyond it from costa to below the cell; reniform rather narrow, with red-brown centre and grey annulus defined by black, two short black streaks beyond it and an oblique black bar above it from costa; a small whitish spot defined by black below end of cell connected by

a sinus on vein 2 with the postmedial line, which is black, bent outwards below costa, then obliquely downcurved, very acutely angled outwards above and below vein 5, then inwardly oblique, dentate, angled outwards in submedian fold and inwards at vein 1, a red-brown line beyond it expanding into a wedge-shaped patch at costa; subterminal line represented by a faint pale shade, obliquely incurved from costa to below vein 6, then waved; an oblique red-brown shade from termen below apex with black streaks on the veins; a series of black striæ before termen defined on outer side by whitish. Hind wing orange-yellow, the hair on inner margin brown; a black-brown fascia in submedian fold to the narrow black medial band, which is obliquely curved from costa to submedian fold, then bent inwards and ending at vein 1; a black terminal band from costa to just below vein 2 and a patch at vein 1; a yellow apical patch; cilia yellowish at base, whitish at tips, slightly chequered with brown at veins 6 to 2. Underside of fore wing pale yellowish, an oblique brown antemedial shade from below costa to vein 1, an oblique black-brown medial band bent inwards and narrowing to inner margin, its inner edge incurved at discocellulars, terminal area blackish, shading to grey at termen, its inner edge curved; hind wing as above, the costal area irrorated with brown, the fascia in submedian fold slight, the terminal band conjoined to the patch at vein 1.

Ab. 1. *protonympha*. Smaller; fore wing with the basal area paler and marked with black, the postmedial line slightly angled outwards below costa and not dentate; hind wing with the medial band shorter and with the black fascia in submedian fold almost obsolete.—Paris.

Ab. 2. *coreana*. Smaller; fore wing with the subbasal line curved; hind wing without the black fascia in submedian fold.—Corea.

Ab. 3. Hind wing with the terminal band not interrupted at submedian fold.

Hab. FRANCE; GERMANY, Zeller, Frey and Mutzell Colls.; AUSTRIA, Mutzell and Leech Colls.; HUNGARY, D'Emmich Coll.; SWITZERLAND; ? SPAIN, Catalonia; N. ITALY; S. RUSSIA, Urals; W. SIBERIA, Altai; E. SIBERIA, Ussuri; COREA. *Exp.* 52–68 millim.

Larva. Kirby, Butt. & Moths Eur. p. 277, pl. 43. f. 8; Hffm. Raup. p. 150, pl. 37. f. 15.

Grey or brown; 8th somite with long pointed tubercle, the 11th with two brown points; warts brown; lateral fringes present; head with dark band. Food-plant, Sloe. 5.

7324. *Ephesia æstimabilis*. (Plate CCII. fig. 2.)

Catocala æstimabilis, Staud. Iris, iv. p. 330, pl. 4. f. 12 (1891); id. Cat. Lep. pal. p. 248.

♂. Head, thorax, and abdomen pale brownish flesh-colour; palpi with some blackish at sides of 2nd and 3rd joints; frons black at sides; tegulæ and patagia with some black-brown scales;

tibiæ slightly irrorated with blackish. Fore wing pale flesh-brown slightly irrorated with dark brown, the inner half of medial area and the interspaces of terminal area suffused with red-brown; two oblique black-brown subbasal striz from costa and a faint diffused streak below the cell; antemedial line indistinctly double, interrupted in cell, oblique to submedian fold, incurved at vein 1; reniform with very faint pale annulus, traces of an oblique brown bar above it from costa; the interspaces beyond the cell between veins 5 and 3 suffused with brown; a small spot defined by brown below end of cell, connected by a sinus with the postmedial line at vein 2; postmedial line dark brown, very oblique and slightly sinuous towards costa, very acutely angled outwards above and below vein 5 and less strongly above vein 4, excurved in submedian fold and angled inwards at vein 1; a diffused pale subterminal line from vein 4 at the postmedial line to inner margin; a crenulate dark brown line just before termen. Hind wing orange-yellow; some brownish in base of cell and submedian fold; a narrow black medial band, oblique to submedian fold, then bent inwards and ending at vein 1, its outer edge angled at vein 5; the terminal area black to below vein 2 and with a patch at vein 1, broad towards costa, its inner edge oblique to vein 4; the apex and cilia yellowish white. Underside of fore wing brownish white, some brown suffusion below base of cell, an oblique dark brown medial band from costa to above vein 1, its outer edge sinuous, the terminal area dark brown, paler towards costa and with pale streaks on the veins; hind wing as above, but pale ochreous, the inner edge of the dark terminal area waved.

Hab. W. TURKESTAN, Issyk-kul, 1 ♂; E. TURKESTAN, Kashgar.
Exp. 40 millim.

Genus **ALLOTRIA**.

Allotria, Hübn. Verz. p. 280 (1827) *Type.*
elonympha.

Proboscis fully developed; palpi upturned, the 2nd joint reaching to about vertex of head and moderately scaled, the 3rd long; frons smooth; eyes large, round; antennæ of male ciliated; thorax clothed with scales and hair mixed, the pro- and metathorax with spreading crests; tibiæ moderately fringed with hair, the mid tibiæ spined, in male dilated with a fold containing a tuft of long hair; build rather slender; abdomen with dorsal series of crests, except on terminal segments. Fore wing with the apex rounded, the termen evenly curved, crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the cell nearly half the length of wing; veins 3, 4 from angle; 5 fully developed from just above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

7325. *Allotria elonympha*.

Ephesia elonympha, Hübn. Zutr. p. 11, ff. 29, 30 (1818); Guen. Noct. iii. p. 37, pl. 15. f. 11; Smith, Cat. Noct. N. Am. p. 330.

Head and thorax black-brown mixed with white; palpi blackish with white rings at the extremities of the joints; tegulæ and patagia

edged with white; tarsi black ringed with white; abdomen pale grey tinged with brown and irrorated with fuscous. Fore wing opalescent white largely suffused with red-brown and irrorated with blackish, the medial area mostly white; subbasal line black, ex-curved below costa and ending at vein 1, above which there is a short black streak; antemedial line black, slightly angled outwards below costa, then oblique, sinuous; a small black spot in middle of cell; reniform defined by blackish, small, an oblique black bar above it from costa, and an incurved dentate line from it to inner margin; postmedial line black defined on outer side slightly by white, minutely dentate, oblique from costa to vein 4, then incurved and angled outwards at vein 1, some white points beyond it on costa with black between them; subterminal line white, defined on inner side by somewhat dentate black marks, ex-curved below vein 7 and

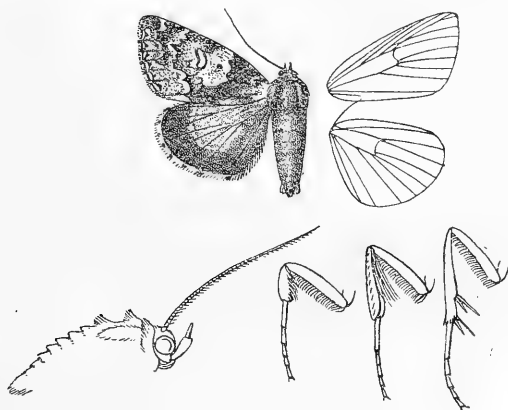


Fig. 8.—*Allotria elonympha*, ♂. 1.

angled outwards at middle; a series of small black lunules just before termen, defined on outer side by white; cilia fuscous at base, chequered fuscous and white at tips. Hind wing orange-yellow, the terminal area broadly fuscous brown; cilia chequered fuscous and white. Underside of fore wing grey-white suffused with brown, a diffused oblique dark line from costa above end of cell to below lower angle of cell, where it joins the diffused postmedial line, which is incurved below vein 4, terminal area suffused with black-brown; hind wing yellowish white irrorated with brown, the terminal area suffused with brown, a dark discoidal bar, diffused curved medial and postmedial lines and slight subterminal shade.

Hab. CANADA; U.S.A., Middle and Southern States, 2 ♂, 1 ♀, District of Columbia, Georgia, Alabama, 1 ♂, Florida. *Exp.* 40–44 millim.

Larva. Guen. Noct. iii. p. 38.

Grey-white with a rosy tinge, the incisions and transverse series

of points on each somite brownish; a brown stigmal line emitting lateral bands on 10th and 11th somites. Food-plants: *Glycine* and Walnut. The larva reposes with its back hunched, the 1st pair of prolegs smaller than the others.

Genus **ANDREUSIA.**

Type.

Andrewsia, Grote, New Check-List, p. 41 (1882) *messalina*.

Proboscis fully developed; palpi upturned, the 2nd joint reaching about to vertex of head and moderately scaled, the 3rd joint short; frons smooth, with slight ridge of hair; eyes large, round; antennæ of male ciliated; thorax clothed with hair and scales mixed and without crests; tibiæ moderately fringed with hair, the mid tibiæ spined, the hind tibiæ spined between the medial and terminal pairs of spurs, the mid tibiæ of male dilated with a fold containing a tuft of long hair; abdomen smoothly scaled and without crests. Fore wing with the apex rounded, the termen evenly curved and hardly crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the cell nearly half the length of wing; veins 3, 4 from angle; 5 fully developed from just above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

7326. *Andrewsia messalina*.

Catocala messalina, Guen. Noct. iii. p. 107 (1852); Smith, Cat. Noct. N. Am. p. 330.

Catocala belfragiana, Harvey, Bull. Buff. Soc. Nat. Sci. ii. p. 281 (1875).

Catocala jocasta, Streck. Lep. Rhop. & Het. p. 107 (1875).

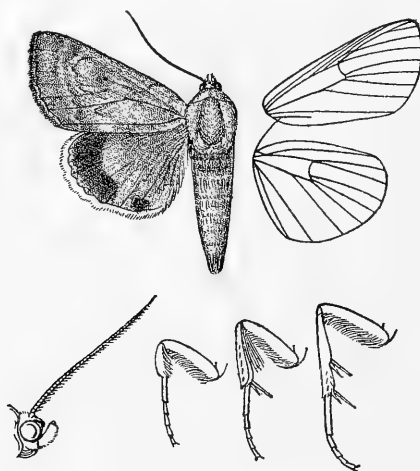


Fig. 9.—*Andrewsia messalina*, ♂. $\frac{1}{2}$.

Head and thorax grey-white mixed with brown; palpi with the 2nd joint blackish towards extremity; sides of frons blackish; tarsi blackish with pale rings; abdomen grey, dorsally tinged with

red-brown except at base. Fore wing pale grey thickly irrorated with reddish brown; antemedial line brownish, faint oblique and slightly sinuous to median nervure, then almost obsolete; a slight dark mark at lower angle of cell on a curved medial shade; post-medial line very indistinct, slightly bent outwards below costa, then oblique to above vein 5, where it is angled outwards, then inwardly oblique and minutely waved; subterminal line grey defined on each side by dark shades, somewhat oblique from costa to below vein 6. Hind wing yellow, some brownish suffusion at base extending on costal area to middle; terminal area blackish, expanding at middle, its inner edge excurved at submedian fold to near termen; the termen slightly yellowish at apex; cilia yellowish white with some brown at base between veins 6 and 2. Underside of fore wing yellowish white, the costa, an oblique medial band from costa to vein 1, and the terminal area blackish brown; hind wing as above, but with the basal costal area and the postmedial area whitish irrorated with brown, a diffused oblique brown medial band from costa to beyond lower angle of cell, then slight and at submedian fold bent inwards to above vein 1.

Ab. 1. *belfrageana*. Fore wing with the markings almost obsolete; hind wing without any brown at base, the terminal band ending at vein 2 and separated from a spot on vein 1, the termen with more yellow, and the cilia without any brown; the underside with the medial band almost obsolete.—Texas.

Hab. U.S.A., Kansas (*Snow*), 1 ♀, Texas, 1 ♂, 1 ♀ type *belfrageana*. *Exp.* 50–54 millim.

Genus CORISCE.

Corisce, Hübn. Verz. p. 278 (1827) Type.
amica.

Proboscis fully developed; palpi upturned, the 2nd joint reaching to about vertex of head and moderately scaled, the 3rd rather long; frons smooth; eyes large, round; antennæ of male ciliated; thorax clothed chiefly with scales, the prothorax with slight spreading crest, the metathorax without crest; tibiae moderately fringed with hair, the mid tibiae spined, dilated, and with a fold containing a tuft of hair; abdomen slender, smoothly scaled and without crests. Fore wing with the apex rounded, the termen evenly curved, crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the cell nearly half the length of wing; veins 3, 4 from angle; 5 fully developed from above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

7327. *Corisce amica*.

Ephesia amica, Hübn. Zutr. i. p. 14, ff. 57, 58 (1818); Smith, Cat. Noct. N. Am. p. 330.

Catocala androphila, Guen. Noct. iii. p. 106 (1852).

Catocala lineella, Grote, Trans. Am. Ent. Soc. iv. p. 18 (1872).

Catocala nerissa, H. Edw. Bull. Brooklyn Ent. Soc. iii. p. 61 (1880).

Catocala jair, Streck. Ent. News Philad. viii. p. 116 (1897); Dyar, Cat. Lep. N. Am. p. 231.

Catocala suffusa, Beutenm. Bull. Am. Mus. xix. p. 508 (1903).

Head and thorax grey-white mixed with reddish brown and

fuscous; palpi with black patch on 2nd joint near extremity, the 3rd joint black in front; blackish bars on frons and between antennæ; tegulæ with black line at base and dark medial band, the patagia with dark spot at base and streak near upper edge; pectus brownish white; legs white, mixed with black, the tarsi black ringed with white; abdomen fulvous yellow, the extremity red-brown, the ventral surface white tinged with red-brown. Fore wing grey-white mixed with red-brown; subbasal line blackish, angled outwards below costa and ending at submedian fold, a short black streak beyond it on costa; antemedial line blackish with more or less rufous suffusion before it, oblique, waved; reniform obscurely defined by brown and with some rufous suffusion beyond it, an oblique dark bar above it from costa; a pale spot obscurely defined by brown below end of cell; postmedial line black, forming a small spot at costa, bent outwards below costa, then oblique and

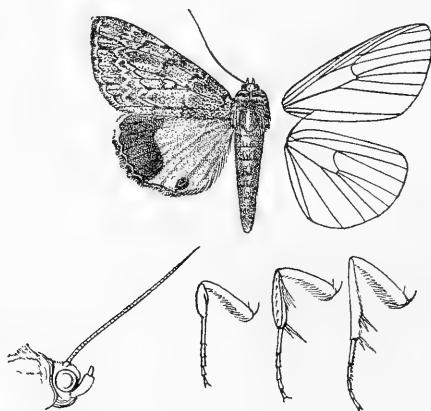


Fig. 10.—*Corisce amica*, ♂. $\frac{1}{2}$.

slightly sinuous, angled outwards above vein 5, then inwardly oblique and minutely dentate, more strongly angled outwards in submedian fold and inwards at vein 1; subterminal line whitish, dentate, oblique from costa to below vein 7; a slight oblique dark shade from termen below apex; a crenulate blackish terminal line. Hind wing orange-yellow; the terminal area black from apex to vein 2, its inner edge excurved, a black spot at extremity of vein 1; the termen narrowly yellowish white at apex; the cilia yellowish white at apex, then fuscous with some whitish at tips. Underside of fore wing pale ochreous yellow, an obliquely curved black-brown medial band, the terminal area black-brown, narrowing to tornus, its inner edge slightly angled outwards at submedian fold; hind wing yellow, the costal area whitish, an oblique black band from middle of costa

to lower angle of cell, and a round spot in submedian interspace, the terminal area as above, but the black continued as a narrow band to tornus and angled inwards at vein 1.

Ab. 1. *lineella*. Fore wing more suffused with black, the oblique dark shade from termen absent.

Ab. 2. *suffusa*. Fore wing with the inner area suffused with black and confluent with the strong oblique black shade from termen below apex.

Ab. 3. *jair*. Fore wing tinged with chocolate-brown.

Ab. 4. *nerissa*. Fore wing almost entirely deep chocolate-brown, the markings obscured.

Hab. U.S.A., Massachusetts, New York, 8 ♂, Ohio, Columbus, 1 ♂, Georgia, 2 ♂, Florida, 1 ♂, Central States, Missouri, New-haven, 1 ♀, Kansas, 2 ♂, 2 ♀, Texas, Dallas (*Boll*), 4 ♂, 1 ♀, Arizona, Prescott (*Oslar*), 3 ♂, 1 ♀, Tucson (*Oslar*), 1 ♂, 3 ♀. *Exp.* 40–50 millim.

Larva. Guen. Noct. iii. p. 106; Coquillett, *Papilio*, i. p. 7.

Dull greenish yellow, a pale dorsal stripe defined on each side by black; 8th somite with slight prominence; ventral surface greenish white with a series of black spots; head grey with a pair of white spots on upper part of face. Food-plant, Burr-Oak.

Genus AUDEA.

Audea, Wlk. xiii. 1134 (1857) *Type.* *vipunctata*,

Proboscis fully developed; palpi upturned, the 2nd joint reaching about to vertex of head and moderately scaled, the 3rd long; frons smooth; eyes large, round; antennæ of male ciliated; thorax clothed with scales and hair mixed and without crests; all the tibiæ spined; abdomen with some rough hair at base but without crests. Fore wing long and narrow, the apex rounded, the termen evenly curved and not crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the cell more than half the length of wing; veins 3, 4 from angle or shortly stalked; 5 fully developed from just above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

SECT. I. Antennæ of male with some erect hair on upperside of shaft towards base.

A. Antennæ of male with fasciculate cilia; fore coxæ, femora, and tibiæ tufted with very long hair, the mid and hind tibiæ fringed with long hair above; abdomen of female with lateral tufts of scales on penultimate segment.

a. Underside of fore wing clothed with silky androconia from near base to postmedial line.

a¹. Fore wing with small spot below end of cell connected by a sinus with the postmedial line.

a². Hind wing of male suffused with fuscous and with some ochreous on basal costal area, of female with the inner area fuscous.....

b². Hind wing of female with the inner area white ... *endophæa.*
hypostigmata.

- b^1 . Fore wing without small spot below end of cell connected by a sinus with the postmedial line.
 a^2 . Fore wing with small white spot on the cilia below apex.
 a^3 . Hind wing with the terminal band broad *bipunctata*.
 b^3 . Hind wing with the terminal band much narrower *agrotidea*.
 b^2 . Fore wing without white spot on the cilia below apex.
 a^3 . Hind wing with the fuscous on termen extending to costa *melaleuca*.
 b^3 . Hind wing with the fuscous on termen not extending to costa *fatilega*.

7328. *Audea endophæa*, n. sp. (Plate CCII. figs. 3 ♂, 4 ♀.)

♂. Head and thorax black-brown mixed with more or less red-brown; spurs and tarsi ringed with white; abdomen black-brown with some rufous at base of dorsum and greyish segmental lines interrupted dorsally on basal segments, the ventral surface brown mixed with grey. Fore wing black-brown slightly irrorated with grey, the basal area blacker; antemedial line black, expanding into a spot at costa, slightly angled inwards in cell, then oblique, sinuous; a slight black discoidal lunule; traces of a small spot defined by black below end of cell connected by a sinus on vein 2 with the postmedial line, which is black, oblique and slightly down-curved to vein 6, then minutely waved and oblique below vein 4; the dark area bounded by a slight line oblique from costa to vein 4, then erect, the area beyond it slightly paler; a crenulate black terminal line defining white points at the extremities of the veins; cilia with a small white spot below apex. Hind wing whitish clothed with fuscous hair, the basal area ochreous to median nervure, the terminal area fuscous black, broadly at costa and narrowing towards tornus. Underside of fore wing with a little whitish at base, clothed with silvery fuscous scales to the indistinct oblique whitish line from costa beyond middle to tornus, the terminal area greyer; hind wing white to the terminal band, the costa suffused with fuscous and with a blackish spot above end of cell.

♀. Thorax except tegulæ brown mixed with white, the meta-thorax with a black patch; fore wing with brownish white mixed, a subbasal black line angled outwards below costa and ending at submedian fold, a blackish patch on inner area before the antemedial line, the lines and spot below end of cell much more prominent; hind wing pure white except the inner and terminal areas; underside of fore wing with some white in end of cell, the postmedial band distinct from costa to vein 5; hind wing with the black spot on costa oblique.

Hab. SIERRA LEONE, Freetown (*Austen*), 1 ♂; GOLD COAST, Aburi (*Johnson*), 1 ♂; S. NIGERIA, Lagos (*Boag*), 1 ♀, Calabar (*Dudgeon*), 1 ♂, Olokemeji (*Dudgeon*), 2 ♀, Ilesha (*Humfrey*), 1 ♂, 1 ♀ type; N. NIGERIA, Panguma (*Anderson*), 2 ♀. *Exp.* 52-60 millim.

7329. *Audea hypostigmata*, n. sp. (Plate CCII. fig. 5.)

♀. Head and tegulæ black-brown; thorax white mixed with some brown; pectus and legs fuscous brown, the tarsi ringed with whitish; abdomen fuscous, the extremity and ventral surface reddish brown. Fore wing whitish suffused with purplish red-brown and with some dark irroration, the terminal area paler; a waved black subbasal line from costa to submedian fold; antemedial line black, expanding into a triangular spot at costa, oblique, sinuous; a slight black mark at upper angle of cell and a small whitish spot defined by black below end of cell, both connected with the postmedial line, which is black, rather diffused towards costa, arising just beyond the antemedial line, oblique to vein 4 and at vein 2 angled inwards to the spot below end of cell, then again bent outwards and reaching the inner margin close to the antemedial line, some blackish suffusion beyond it on costa; the edge of the dark area incurved to vein 4 where it is angled outwards, then again incurved, followed by some white suffusion; a crenulate black terminal line; cilia with a small white spot below apex. Hind wing white; the terminal area black-brown, broad towards costa, narrowing to tornus. Underside of fore wing fuscous brown, the basal half white except at costa, a white postmedial band from costa to vein 3; hind wing with blackish spot on middle of costa.

Hab. NATAL, Durban (*Gueinzius*), 1 ♀ type. *Exp.* 58 millim.

7330. *Audea bipunctata*.

Audea bipunctata, Wlk. xiii. 1135 (1857), ♂.

Phoberia fatua, Feld. Reise Nov. pl. 116. f. 1 (1874), ♀.

♂. Head and thorax black-brown mixed with some red-brown; abdomen fuscous with some reddish brown at base and some grey at sides towards extremity, the ventral surface white tinged with brown. Fore wing black-brown irrorated with grey, the terminal area rather paler and with a slight purplish tinge; antemedial line black slightly defined on inner side by brown, slightly angled outwards on subcostal and median nervures, then oblique; a slight black discoidal lunule; postmedial line double filled in with purplish brown and with some purplish brown before it towards costa, the outer line indistinct and dilated into a wedge-shaped mark at costa, minutely waved, excurved below costa and angled inwards in submedian fold; a crenulate black terminal line with white points at the extremities of the veins; cilia with a small white spot just below apex. Hind wing white, the basal half of costal area tinged with ochreous, the terminal half black-brown; a terminal black-brown band wide towards apex and narrowing to a point at tornus; cilia chequered brown and white at tips. Underside of fore wing with some brownish white at base of inner area, then clothed with silky black androconia to the obliquely curved whitish postmedial

band ending at tornus, the terminal area fuscous brown; hind wing with the costal area white to beyond middle and with a brownish spot at middle.

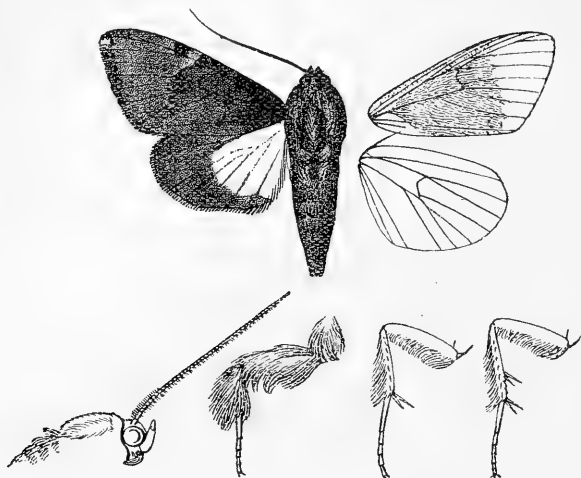


Fig. 11.—*Audea bipunctata*, ♂. ♀.

♀. Thorax except in front white mixed with red-brown; fore wing whitish suffused with purplish red-brown and with some dark irroration, the terminal area paler; a waved black subbasal line from costa to submedian fold; the ante- and postmedial lines strong and black; underside of fore wing white except on costal area to end of cell.

Ab. 1. Hind wing with the black-brown terminal band hardly extending below vein 2.

Hab. NATAL, Estcourt (*Hutchinson*), Durban (*Gueinzus, Burrows, Leigh*), 8 ♂, 3 ♀. *Exp.* 52–64 millim.

*7331. *Audea agrotidea*.

Bolina agrotidea, Mab. Ann. Soc. Ent. Fr. (5) ix. p. 346 (1879).

Audea bipunctata, Saalm. Lep. Madag. p. 440, f. 206 (nec Wlk.).

♂. Head, thorax, and abdomen blackish brown slightly mixed with whitish; ventral surface of abdomen white slightly tinged with rufous. Fore wing greyish suffused with red-brown, the basal area black-brown; antemedial line blackish, oblique, waved, forming a spot at costa; a black discoidal striga; postmedial line blackish, oblique to discal fold, then slightly incurved and waved, met below costa by an oblique diffused blackish bar from costa; an indistinct diffused brown subterminal line, incurved at discal fold; a series of slight dark points before termen. Hind wing

semihyaline white; a reddish brown terminal band moderately broad at apex and narrowing to a point at submedian fold. Underside of fore wing with the base white except at costa, then clothed with black-brown androconia to an obliquely curved white band from costa beyond middle to termen at submedian fold, a wedge-shaped white mark beyond the discocellulars with some ochreous white above it on costa.

Hab. MADAGASCAR, type \dagger ♂ in Coll. Mabilie. *Exp.* 58 millim.

7332. *Audea melaleuca*. (Plate CCII. fig. 6.)

Audea melaleuca, Wlk. xxxiii. 921 (1865).

♂. Head and thorax black-brown; pectus whitish tinged with brown; tarsi black ringed with white; abdomen white suffused with fuscous leaving white segmental rings, some ochreous hair at base. Fore wing black-brown; traces of an oblique antemedial line and of a discoidal striga; a very indistinct postmedial line oblique from costa to vein 5, then erect; a series of black points just before termen. Hind wing pure white, the costal edge fuscous brown; a black-brown terminal band from costa to vein 2. Underside of fore wing with the basal area white with oblique outer edge, then clothed with silky fuscous-brown scales to the slight oblique dark postmedial line from costa to tornus with diffused white patches before and beyond it on costal area, the terminal area fuscous brown.

Ab. 1. Blacker; abdomen darker without ochreous at base; underside of fore wing with the silky scales black, no white before the postmedial line; hind wing with slight dark spot on middle of costa.—Transvaal.

Hab. At sea to windward of Cape Verd Is. (*Lowne*), 1 ♂ type; TRANSVAAL, White R. (*Cooke*), 1 ♂. *Exp.* 54–58 millim.

7333. *Audea fatilega*.

Anophia fatilega, Feld. Reis. Nov. pl. 112. f. 9 (1874).

♀. Head and thorax black-brown; pectus white tinged with ochreous brown; legs black irrorated with white, the tarsi ringed with white; abdomen white tinged with brown towards extremity. Fore wing black-brown with a slight greyish tinge and irrorated with black; subbasal line black, sinuous, from costa to submedian fold; antemedial line black, waved and somewhat oblique; reniform represented by a pale or reddish point; a small irregular spot defined by black below end of cell; postmedial line black, with faint reddish marks beyond it and before it beyond the cell, bent outwards below costa, then oblique, acutely angled outwards above vein 5, then inwardly oblique, dentate and strongly angled inwards at vein 1; a subterminal series of whitish points defined by black in the interspaces and with black streaks from them to the terminal

series of slight pale points. Hind wing pure white; a terminal blackish patch between veins 6 and 2 emitting slight streaks on the veins and connected by slight dark marks on termen with a spot at vein 1; cilia white with slight fuscous marks at base at veins 5 to 2. Underside of fore wing white, a blackish postmedial band, the terminal area blackish except towards tornus.

Hab. BR. E. AFRICA, Athi-ya-Mawe (*Betton*), 1 ♀; NATAL, Estcourt (*Hutchinson*), 1 ♀, Durban (*Trimen*), 1 ♀; CAPE COLONY, Queenstown. *Exp.* 44-54 millim.

b. Fore wing of male without silky androconia on underside.

7334. *Audea stenophæa*, n. sp.

♂. Head black, the basal joint of antennæ ochreous; tegulæ black with some ochreous scales at tips; thorax ochreous mixed with black; abdomen ochreous white with some fuscous suffusion except at base and lateral series of black spots. Fore wing black-brown mixed with some whitish, the basal area blacker; traces of an oblique sinuous antemedial line and of a discoidal striga; post-medial line hardly traceable, oblique from costa to vein 6, then

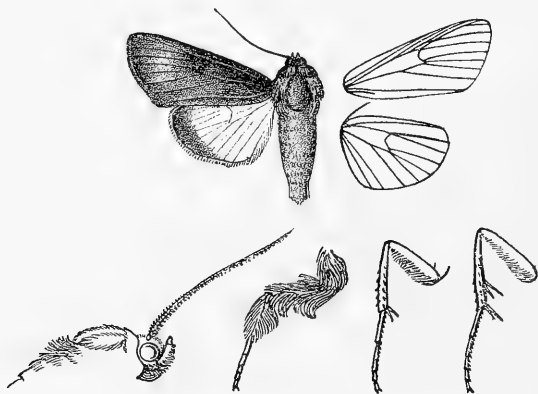


Fig. 12.—*Audea stenophæa*, ♂. 1.

erect; cilia with a white patch just below apex. Hind wing pure white with a terminal black band from apex to vein 2; cilia white with slight brown marks at veins 2 and 1. Underside of fore wing white, the costal edge black, a fuscous brown postmedial band from costa to submedian fold, the terminal area fuscous except towards tornus; hind wing with blackish spot at middle of costa.

Hab. MADRAS, Palni Hills (*Campbell*), 1 ♂ type. *Exp.* 46 millim.

- B. Antennæ of male without fasciculate cilia; tibiæ moderately fringed with hair, the fore coxæ tufted with hair.
 a. Antennæ of male with four small tile-like tufts of hair on upperside of shaft four-fifths from base; the fore tibiæ with group of long spines on inner side at extremity.

7335. *Audea tegulata*.

Audea tegulata, Hmpsn. Ann. S. Afr. Mus. ii. p. 325 (1902).

Head and thorax black-brown mixed with grey-white; palpi and frons black-brown; pectus brownish white; tarsi black ringed with white; abdomen grey tinged with red-brown and with white segmental lines, the ventral surface white irrorated with brown. Fore wing grey-white thickly irrorated with black-brown; subbasal line represented by an oblique black bar from costa; antemedial line with black spot at costa, slightly angled outwards below costa, then sinuous and indistinct, a black point before it in cell; a curved black discoidal striga; postmedial line black, oblique and slightly

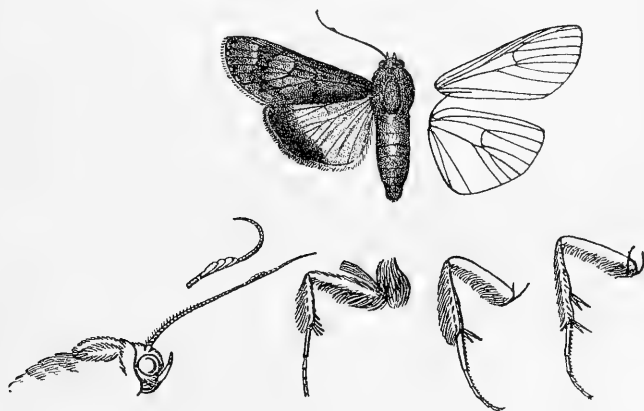


Fig. 13.—*Audea tegulata*, ♂. 1.

sinuous to below vein 6, then erect and waved, a rather diffused curved minutely waved line beyond it; a series of slight black lunules just before termen defined on outer side by whitish; cilia black at base, chequered black and white at tips. Hind wing white, the veins and inner area tinged with ochreous brown; the terminal area fuscous brown, narrowing to tornus; cilia brownish at base, white at tips. Underside of fore wing brownish white, the costa black, a curved dark postmedial shade, the terminal area fuscous except towards tornus; hind wing whitish, a slight dark postmedial spot on costa, a fuscous terminal band from apex to below vein 2, leaving slight whitish marks on termen.

Hab. MASHONALAND, Salisbury (*Marshall*), 1 ♂, 1 ♀ type. *Exp.* ♂ 46, ♀ 50 millim.

- b. Antennæ of male normal; the fore tibiæ without group of spines at extremity; tegulæ with tufts of long scales; abdomen of female with lateral tufts of scales on penultimate segment.

7336. *Audea humeralis*.

Audea humeralis, Hmps. Ann. S. Afr. Mus. ii. p. 327 (1902).

Head and thorax brownish white mixed with dark brown and black; palpi except at base, frons and shoulders black; pectus and legs brownish white, the tibiæ irrorated with brown and with blackish bands, the tarsi black ringed with white; abdomen white dorsally tinged with ochreous brown. Fore wing grey-white irrorated and suffused with fuscous brown and blackish, the discal area semihyaline whitish; a patch of black suffusion at base of costal area; antemedial line black, bent outwards below costa and above inner margin, a patch of black suffusion before it on inner

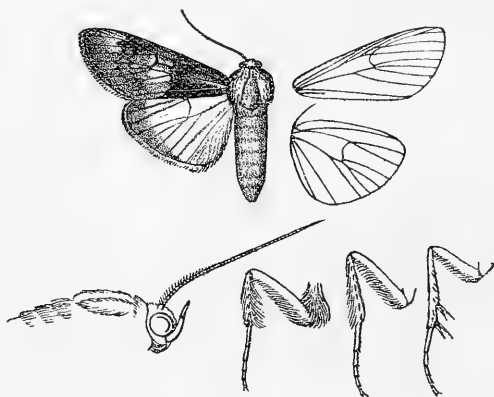


Fig. 14.—*Audea humeralis*, ♂. †.

margin; a black discoidal striga with two slight streaks before it in the cell; the veins of medial area streaked with blackish; post-medial line double, black, excurved and waved, with a black mark on it below costa; a series of slight black strigæ defined on outer side by whitish just before termen; cilia chequered white and blackish at tips. Hind wing semihyaline white, the veins and inner area tinged with brown; a terminal fuscous brown band from apex to vein 2; cilia white tinged with brown at base. Underside of fore wing white with a curved blackish postmedial band and a terminal band from apex to submedian fold.

Hab. S. NIGERIA, Vivet (*Dudgeon*), 1 ♀; SUDAN, White Nile (*Dunn*), 1 ♂; N.E. RHODESIA, Mpika (*Neave*), 1 ♀; MASHONALAND, Salisbury (*Marshall*), 1 ♂; BECHUANALAND, Lake N'Gami (*Lugard*), 1 ♀ type. *Exp.* 40–48 millim.

SECT. II. Antennæ of male without erect hairs on upperside of shaft towards base.

A. Fore wing of male on upperside with fringe of large scales from costa from base to end of cell.

7337. *Audea melanoplaga*.

Audea melanoplaga, Hmps. Ann. S. Afr. Mus. ii. p. 328 (1902).

♂. Head, shoulders, and outer edge of patagia black, the back of head with some whitish; dorsum of thorax white mixed with brown; pectus white; legs blackish, the fore and mid femora fulvous above, the tarsi ringed with white; abdomen white irrorated with fuscous, the extremity fuscous, the ventral surface pure white with the extremity fulvous. Fore wing white irrorated with fuscous, the discal area whiter, the terminal area suffused with fuscous; an antemedial blackish bar on inner area; a fine white line at base of cilia. Hind wing pure white, the terminal area

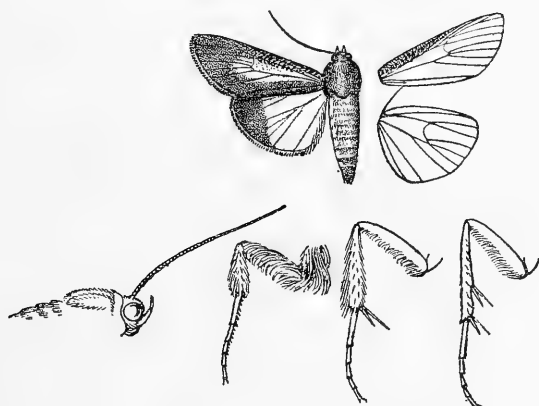


Fig. 15.—*Audea melanoplaga*, ♂. 1.

black from apex to vein 2 where it narrows to a point, emitting on inner side slight streaks on the veins; cilia white with some fuscous at base from apex to vein 2. Underside of fore wing white, the terminal area broadly fuscous shading to greyish, the costal edge black, a large black patch on costa beyond middle; hind wing with the costal edge black, the costal area slightly irrorated with fuscous.

♀. Tegulæ and shoulders black, the patagia not black on outer side; abdomen white to extremity; fore wing whiter to beyond middle, the costal area black to near middle and with wedge-shaped black patch beyond middle, an antemedial black point on median nervure and wedge-shaped patch on inner area, a punctiform black postmedial line arising from the costal patch and somewhat oblique

below vein 4; hind wing with the terminal area more broadly black; underside of fore wing with blackish postmedial band with whitish band beyond it from costa to vein 4.

Hab. BR. E. AFRICA, Nairobi (*Anderson*), 2 ♀; BECHUANALAND, Lake N'Gami (*Lugard*), 1 ♂, 1 ♀ type; TRANSVAAL, Lydenburgh, 1 ♀. *Exp.* ♂ 40, ♀ 42 millim.

B. Fore wing of male without fringe of large scales from costa.

a. Tegulæ of male much produced and with tufts of ochreous scales at extremity; fore wing on underside with the cell clothed with fulvous androconia.

7338. *Audea fumata*.

Lophoptera fumata, Wllgrn. Wien. Ent. Mon. iv. p. 171 (1860).

♂. Head and thorax white mixed with fuscous brown; frons with lateral black bars; tegulæ with blackish band and ochreous scales at extremities, the metathorax with blackish streaks at sides; pectus ochreous white; tarsi blackish ringed with white; abdomen white tinged with ochreous and with grey-brown at extremity.

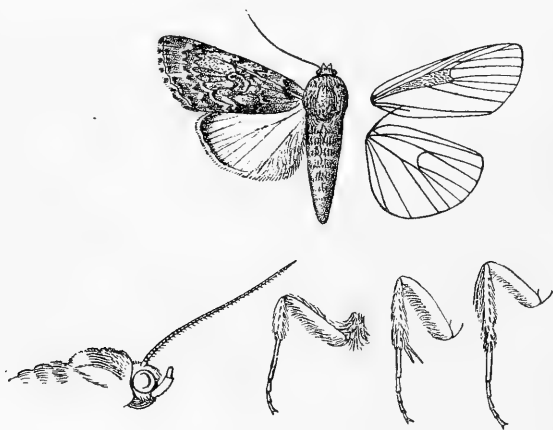


Fig. 16.—*Audea fumata*, ♂. †.

Fore wing grey-white irrorated with fuscous, some blackish suffusion at middle of inner margin; subbasal line black, angled outwards below costa and at median nervure, ending at submedian fold; antemedial line black slightly defined on inner side by white, angled outwards and tridentate in cell, then sinuous, two black discoidal points and a small spot above them on costa; a large spot defined by black below end of cell, its outer edge excised; postmedial line black slightly defined on outer side by white, crenulate, excurved to vein 4, then oblique; subterminal line slight, white defined on

inner side by blackish, dentate, oblique from costa to below vein 7; a crenulate blackish terminal line defining white points at the extremities of the veins. Hind wing white, the veins of terminal area and the termen except at tornus brownish; cilia white. Underside of fore wing white, the costal and terminal areas brownish, the cell with fulvous androconia and some ochreous below and beyond it; hind wing with the costa creamy white, a brown postmedial bar from costa.

♀. Thorax and fore wing with more black.

Hab. TRANSVAAL, Pretoria, 1 ♀; NATAL (*Marshall*), 1 ♂, Bushman's R. (*Hutchinson*), 1 ♀, Estcourt (*Hutchinson*), 3 ♀; CAPE COLONY, Transkei (*Miss F. Barrett*), 1 ♂. *Exp.* 46-48 millim.

b. Tegulæ of male and fore wing on underside normal.

*a*¹. Fore wing white irrorated with fuscous and with black patch on inner area before the antemedial line..... *irioleuca*.

*b*¹. Fore wing nearly uniform blackish in male, female with black patches on costa and inner margin *subligata*.

7339. *Audea irioleuca*.

Thyas irioleuca, Meyr. Trans. Ent. Soc. 1897, p. 373.

Head, base of tegulæ, and shoulders black; antennæ white tinged with fuscous; thorax white mixed with fuscous brown; pectus white; legs blackish irrorated with white, the tarsi ringed with



Fig. 17.—*Audea irioleuca*, ♂. 1.

white; abdomen black with some white hair and white segmental bands, the ventral surface white. Fore wing white irrorated with fuscous brown, the costa brown to beyond the postmedial line; sub-basal black striæ from costa and cell; antemedial line fine, black, bent outwards below costa, then somewhat oblique, a conical black patch before it on inner area; a slight black discoidal striga; an

elongate white mark below the cell above base of vein 2; post-medial line black, obliquely excurved from costa to vein 4, at vein 3 bent inwards to below end of cell and again bent outwards at submedian fold, a black patch beyond it on costa, then a brown band defined on outer side by some blackish scales and extending to before the postmedial line in its sinus beyond the cell; the terminal area with a patch of brown suffusion below apex; a terminal series of minute triangular black spots; cilia dark brown towards apex, then chequered brown and white. Hind wing pure white; the terminal area black from apex to vein 2 emitting slight streaks on the veins on inner side, then connected by a narrow band with a spot on vein 1; cilia white chequered with brown at base from apex to vein 2. Underside of fore wing white, the costal edge blackish, a blackish postmedial band with white band beyond it from costa to vein 4, the rest of terminal area fuscous; hind wing as above, but the costal edge black with an oblique black spot from it at middle.

Hab. NEW GUINEA; QUEENSLAND, Townsville (*Dodd*), 1 ♂, 1 ♀, DURINGA. *Exp.* 40 millim.

7340. *Audea subligata*. (Plate CCII. figs. 7 ♂, 8 ♀.)

Audea subligata, Dist. Entom. xxxvi. p. 212 (1902).

♂. Head and thorax black-brown, pectus and femora orange, tarsi with pale rings; abdomen brownish orange with diffused dorsal and lateral blackish patches, the former extensive towards extremity, the latter towards base. Fore wing black-brown; faint traces of an antemedial line; the postmedial line very oblique from costa to vein 6, curved to vein 4, then oblique and produced on inner side to striæ on the veins. Hind wing white; the inner area suffused with fuscous turning to brownish orange towards base and at inner margin; a narrow inwardly diffused black terminal band; cilia white. Underside white; fore wing with the cell suffused with fuscous, the costa black to the curved postmedial band, the apical area black; hind wing with oblique postmedial striga from costa and terminal band.

♀. Head, thorax, and fore wing brown mixed with some blackish, the last with the costal area black to near middle, a postmedial triangular patch on costal area and antemedial patch on inner margin.

Hab. TRANSVAAL, Lydenburgh, 1 ♂, 1 ♀ type. *Exp.* 40 millim.

Genus **ULOTHRICHOPUS**.

Type.

Ulothrichopus, Wlgrn. Svensk. Akad. Handl. v. 4, p. 76 (1865)... *mesoleuca*.
Alura, Möschl. Verh. zool.-bot. Ges. Wien, xxxiii. p. 303 (1884). *catocala*.

Proboscis fully developed; palpi upturned, the 2nd joint reaching to middle of frons and broadly scaled, the 3rd moderate; frons smooth, with tuft of hair; eyes large, round; antennæ of male with fascicles of cilia; thorax

clothed with hair and scales mixed, the prothorax with small spreading crest; the femora in male fringed with long hair and the mid femora with tuft of long hair from base; fore tibiae fringed with very long hair, the mid and hind tibiae moderately fringed with hair, the hind tibiae spined, dilated with a fold and fringe of hair on inner side; abdomen with the basal segments dorsally clothed with rough hair, the two 1st segments with hairy crests. Fore wing rather long and narrow, the apex somewhat produced, the termen obliquely curved, crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the cell nearly half the length of wing; veins 3, 4 from angle; 5 fully developed from just above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

SECT. I. Tegulae of male fringed with long rough hair.

A. Palpi of male with the 2nd joint broadly angled with scales in front at extremity.

7341. *Ulothrichopus macula*.

Audea macula, Hmps. Ill. Het. B.M. viii. p. 84, pl. 146. f. 21 (1891); id. Moths Ind. ii. p. 439.

Head and tegulae rufous mixed with dark brown; thorax grey, the prothorax with dark brown line, the patagia with some black scales near edges; pectus with yellow hair; legs grey mixed with

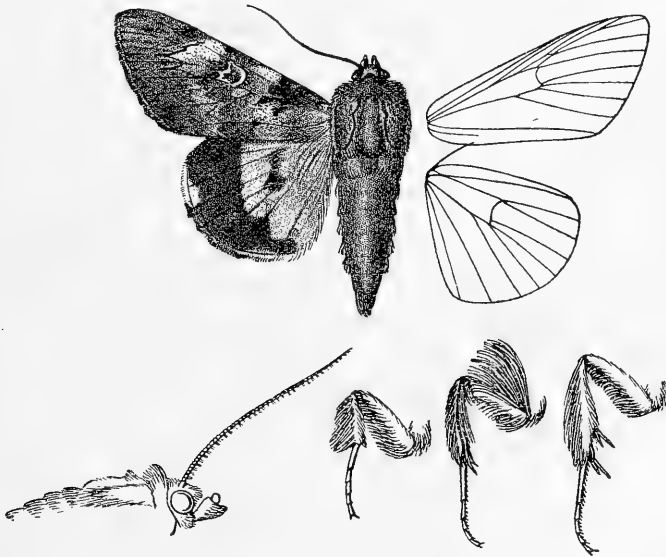


Fig. 18.—*Ulothrichopus macula*, ♂. 1.

dark brown, the tarsi fuscous ringed with white; abdomen yellow, the extremity grey-brown, the ventral surface whitish irrorated with brown. Fore wing grey tinged with brown and irrorated

with dark brown, the veins with dark streaks; subbasal line represented by double oblique dark striæ from costa; antemedial line double, dark brown, oblique, waved, the lines more widely separated towards costa and filled in with whitish towards inner margin; reniform greenish white defined by some dark scales and its centre defined by dark brown; its outer edge somewhat dentate, an oblique dark striga above it from costa; an indistinct whitish spot defined by brown below end of cell; postmedial line dark brown slightly defined on outer side by whitish and with white suffusion before it from costa to the angle above vein 5, bent outwards below costa, then oblique, angled outwards and produced to streaks above and below vein 5, then oblique, waved, angled outwards in submedian fold and inwards at vein 1; subterminal line indistinct, whitish, dentate, oblique from costa to below vein 6; a series of minute dark points just before termen. Hind wing yellow; an oblique blackish discoidal bar expanding into a spot at lower angle of cell; terminal area black, narrowing to just below vein 1, where it terminates, its inner edge incurved at vein 2 and below submedian fold; a small white patch tinged with yellow at apex; cilia chequered fuscous and white. Underside of fore wing with the basal half yellow, the terminal half fuscous black with a curved white postmedial band; hind wing as above but the medial band extending to costa, the postmedial area whitish irrorated with brown to discal fold.

Hab. FORMOSA, Kanshirei; ASSAM (*Badgley*), 1 ♀; MADRAS, Nilgiris (*Hampson*), 1 ♀ type; CEYLON, Haputale (*Mackwood*), 1 ♀, Maskeliya (*de Mowbray*), 1 ♂, 1 ♀. *Exp.* 72-76 millim.

B. Palpi of male with the 2nd joint not angled with scales in front at extremity.

- a. Hind wing with medial blackish band *rama*.
 b. Hind wing without medial band *dinava*.

7342. *Ulothrichopus rama*.

Catocala rama, Moore, Lép. Ceyl. iii. p. 128, pl. 160. f. 6 (1885); Hmps. Moths Ind. ii. p. 439.

Head and tegulæ red-brown with some white scales, the tegulæ with blackish tips; thorax grey mixed with dark brown, the prothorax with dark brown bar, the patagia with some black scales near edges; pectus whitish tinged with red-brown; legs whitish irrorated with dark brown, the tarsi fuscous ringed with white; abdomen grey tinged with brown, the basal crests red-brown tipped with grey. Fore wing grey tinged with brown and irrorated with dark brown, the veins with dark streaks; subbasal line represented by a curved dark striga from costa; antemedial line double, dark, oblique, waved, the lines more widely separated towards costa; reniform greenish white defined

by blackish and with its centre defined by blackish, its outer edge somewhat dentate, a rather triangular dark mark above it on costa; a whitish spot defined by blackish below end of cell; postmedial line black slightly defined on outer side by whitish, bent outwards below costa, then oblique and slightly sinuous, acutely angled outwards above and below vein 5, then oblique, dentate and angled outwards in submedian fold; subterminal line indistinct, diffused, whitish defined on inner side by brown, dentate, oblique from costa to below vein 6; a series of minute dark points just before termen. Hind wing yellow; an obliquely curved medial black band from costa to vein 1; terminal area blackish, narrowing to tornus, its

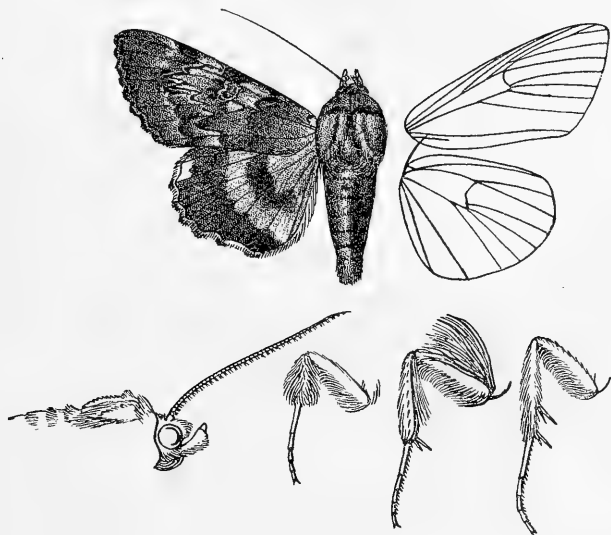


Fig. 19.—*Ulothrichopus rama*, ♂. $\frac{1}{2}$.

inner edge waved; a whitish patch tinged with yellow at apex and the termen narrowly yellow in submedian interspace; cilia white chequered with blackish between veins 6 and 2 and blackish towards tornus. Underside of fore wing with the basal half ochreous white, the costa and an antemedial patch in and below the cell suffused with brown, the terminal half fuscous brown with a diffused whitish postmedial band excurved to vein 2 and in submedian fold, cilia chequered fuscous and white; hind wing as above but the termen with some yellowish white at apex only.

Hab. CEYLON, 1 ♀ type, Pundaloya (*Green*), 1 ♂, Patipola (*Mackwood, Alston*), 1 ♂, 2 ♀, Ohiya (*Mackwood*), 1 ♀, Maskeliya (*de Mowbray*), 1 ♂. *Exp.* 64–70 millim.

7343. *Ulothrichopus dinava*. (Plate CCII. fig. 9.)

Catocala dinawa, Beth.-Baker, Nov. Zool. xiii. p. 246 (1906).

Head and thorax grey, the head and tegulæ suffused with rufous; pectus and legs grey mixed with brown; abdomen grey tinged with brown. Fore wing grey suffused with reddish brown and irrorated with fuscous; subbasal line represented by a slight blackish striga from costa; a faint diffused blackish streak below base of cell; the medial part of vein 1 slightly streaked with blackish; antemedial line indistinct, grey, defined by black on inner side from costa to just below cell, irregularly waved and somewhat oblique, angled inwards on vein 1, some whitish beyond it on costa; some whitish suffusion at lower angle of cell and above base of vein 2; some dark suffusion beyond the cell with a faint oblique streak to it from middle of costa; postmedial line black with some whitish suffusion above and below it at costa, bent outwards below costa, then strongly dentate outwards above veins 7, 6, 5, then less distinct, oblique and moderately dentate and again strongly angled outwards in submedian fold, a faint oblique striga beyond it from costa; subterminal line absent; a series of minute black points just before termen. Hind wing orange-yellow with fuscous terminal band, broad at costa and narrowing to vein 1 where it terminates, its inner edge oblique to vein 3, then sinuous; a white band on termen from apex to vein 6. Underside of fore wing yellowish white, the costal and terminal areas grey, an oblique black postmedial band from costa to vein 1, broad towards costa, narrowing below vein 2, followed by a white band from below costa to submedian fold; hind wing with faint oblique diffused dark line from costa before middle to a small spot in discal fold beyond the cell.

Hab. DUTCH N. GUINEA, SNOW Mts., Oetakwa R. (*Meek*), 1 ♂; BR. N. GUINEA, Dinawa (*Pratt*), type † ♀ in Coll. Bethune-Baker. *Ecp.* 66 millim.

SECT. II. Tegulæ of male not fringed with long rough hair.

- A. (*Alura*.) Hind wing of male on underside clothed with silky downturned hair from costa to median nervure and to just beyond the cell.

7344. *Ulothrichopus catocala*.

Phoberia catocala, Feld. Reis. Nov. pl. 116. f. 2 (1874).

Alura caupona, Möschl. Verb. zool.-bot. Ges. Wien, xxxiii. p. 304, pl. xvi. f. 18 (1884).

♂. Head and thorax grey mixed with red-brown; frons with blackish lateral bars; tegulæ with curved black medial marks; abdomen yellow, the anal tuft and ventral surface whitish tinged with red-brown. Fore wing grey tinged with red-brown and slightly irrorated with black, the veins slightly streaked with black; an oblique subbasal black striga from costa; antemedial line with

small black spot at costa, then indistinct, double, waved, angled inwards at vein 1; reniform very indistinct, small, whitish; traces of a small whitish spot below end of cell; postmedial line black slightly defined on outer side by whitish, very oblique from costa to below vein 6, very acutely angled outwards above and below vein 5, then inwardly oblique and strongly dentate; subterminal line very indistinct, whitish, dentate, oblique from costa to below vein 6; a series of black points just before termen; cilia with a fine whitish line at base. Hind wing yellow, the terminal area broadly fuscous black except at tornus; a small yellow apical patch; cilia white with brown marks at veins 6 to 1. Underside of fore wing

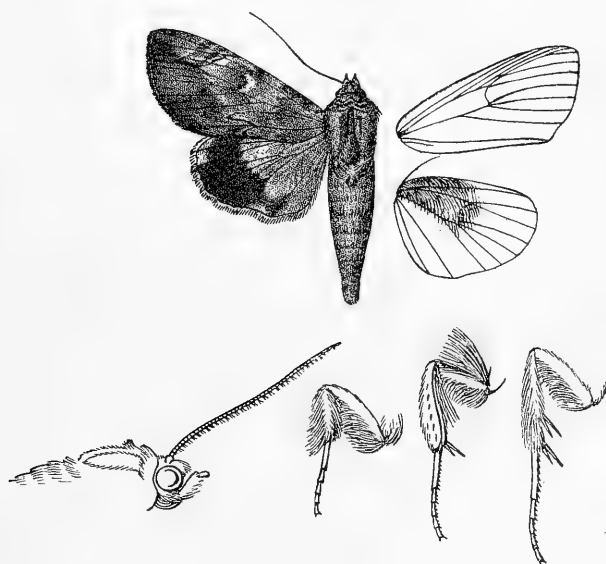


Fig. 20.—*Ulotrichopus catocala*, ♂. 1.

pale yellow to the slightly sinuous black postmedial line which is followed by a white band, then a dark subterminal shade, the terminal area brownish grey; hind wing pale yellow, the costal area whitish irrorated with brown towards apex, a fuscous subterminal patch from vein 6 to 1, the termen whitish irrorated with brown.

♀. Fore wing greyer, the white subterminal line more distinct.

Hab. TRANSVAAL (*Marshall*), 1 ♀; NATAL, Estcourt (*Hutchinson*), 3 ♂, 2 ♀, Durban (*Higgins*), 1 ♂, 1 ♀; CAPE COLONY, Queenstown (*Bulger*). *Exp.* 56–62 millim.

- B. (*Ulothrichopus*.) Hind wing of both sexes on underside with slight fringes of silky downturned hair on subcostal nervure, above median nervure, and on the veins just beyond the cell.
- a. Hind wing yellow or with the inner area yellow.
- a¹. Hind wing with the terminal blackish band not extending below vein 2.
- a². Fore wing with the spot below end of cell not connected with the postmedial line *ochreipennis*.
- b². Fore wing with the spot below end of cell connected with the postmedial line by a sinus *trisa*.
- b¹. Hind wing with the blackish terminal band extending to near tornus.
- a². Fore wing with spot defined by blackish below end of cell.
- a³. Hind wing with yellowish white apical patch.
- a⁴. Fore wing grey and blackish without red-brown tinge.
- a⁵. Fore wing with some white suffusion beyond the cell *leucopasta*.
- b⁵. Fore wing without white suffusion beyond the cell *glaucescens*.
- b⁴. Fore wing with the ground-colour red-brown. *primulina*.
- b³. Hind wing without yellowish white apical patch *phæoleuca*.
- b². Fore wing without spot defined by blackish below end of cell *stertzi*.
- b. Hind wing with the inner area suffused with brown.
- a¹. Hind wing with whitish apical patch.
- a². Hind wing ochreous white; fore wing with the ground-colour red-brown *mesoleuca*.
- b². Hind wing pure white; fore wing grey-white irrorated with black-brown *tinctipennis*.
- b¹. Hind wing without whitish apical patch *phæopera*.

7345. *Ulothrichopus ochreipennis*.

Audea ochreipennis, Butl. A. M. N. H. (5) ii. p. 295 (1878).

♂. Head and thorax purplish grey mixed with red-brown; palpi red-brown; patagia with black outer edge; pectus and legs brownish white, the tarsi blackish ringed with white; abdomen orange-yellow, the extremity brown, the ventral surface ochreous white. Fore wing purplish grey irrorated with brown, the inner area suffused with red-brown; subbasal line black, from costa to submedian fold where there is a tuft of blackish hair at its extremity; antemedial line black, expanding into a spot at costa, then oblique and slightly sinuous; a faint dark discoidal bar with small spot above it on costa; a faint spot defined by brown below end of cell with a slight line from it to inner margin; postmedial line blackish, oblique and slightly sinuous towards costa, acutely angled outwards above and below vein 5, then inwardly oblique and dentate; subterminal line formed by slight whitish dentate marks, defined by blackish towards costa and oblique to below vein 6; a series of black striæ before termen connected by streaks with the subterminal line between veins 7 and 4. Hind wing orange-yellow with a

blackish terminal patch between veins 6 and 2; cilia white at tips and with slight dark marks at veins 5 to 2. Underside of fore wing with the basal half pale yellow, a blackish discoidal patch with slight curved line from it to inner margin, followed by an ochreous

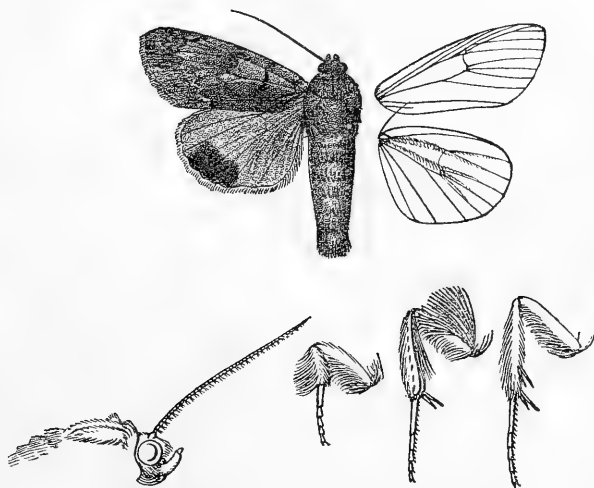


Fig. 21.—*Ulothrichopus ochreipennis*, ♂. $\frac{1}{2}$.

white band, terminal area blackish shading to grey at termen and towards tornus.

Hab. MADAGASCAR, Betsileo (*Cowan*), 1 ♂ type. *Exp.* 52 millim.

7346. *Ulothrichopus trisa*. (Plate CCII. fig. 11.)

Catocala trisa, Swinh. A. M. N. H. (7) iii. p. 115 (1899).

♂. Head and thorax red-brown with a blackish tinge; pectus yellow; legs brown mixed with yellowish, the tarsi blackish with pale rings; abdomen orange-yellow, the ventral surface whitish. Fore wing red-brown tinged in parts with fuscous especially on basal and costal areas; subbasal line black, from costa to submedian fold; antemedial line double, black, the inner line indistinct, oblique, sinuous, excurved above inner margin; reniform very faintly defined by blackish; a slightly paler spot defined by blackish below end of cell; postmedial line black, oblique and sinuous to above vein 5 where it is angled outwards, then inwardly oblique, dentate, strongly angled inwards at vein 1; subterminal line represented by a series of small dentate black marks and an oblique blackish shade from costa to vein 7 where it is met by a blackish streak from termen, defining an ochreous brown apical patch; a

series of black striæ before termen; cilia with a fine pale line at base. Hind wing orange-yellow, the costal area rather paler; a black-brown terminal patch between veins 6 and 2 joined by a sub-terminal band to costa and with slight terminal yellow spots on it in the interspaces; cilia yellowish white. Underside of fore wing white, the inner area tinged with yellow, a wedge-shaped black-brown patch from costa to lower angle of cell with a slight oblique line from it to inner margin, terminal area black-brown with a white apical patch and some whitish on inner half of termen; hind wing as above, but the apical patch whitish.

Hab. BOMBAY, 1 ♂, Satara. *Exp.* 42 millim.

7347. *Ulothrichopus leucopasta*, n. sp. (Plate CCII. fig. 12.)

Head and thorax black mixed with grey and some brown; pectus white; tarsi black ringed with white; abdomen orange, the base whitish, the extremity fuscous and grey, the ventral surface whitish. Fore wing dark leaden grey thickly irrorated with black and with some red-brown mixed; subbasal line black from costa to submedian fold, with small black spots beyond it below costa and median nervure; antemedial line double, black filled in with deep red-brown, slightly oblique and sinuous; reniform indistinctly defined by fuscous, the centre defined by rufous; a small white spot below end of cell defined by black; an indistinct black medial line ex-curved round end of cell, then incurved; postmedial line black defined on outer side by small white spots and with some white suffusion before it beyond the cell, slightly bent outwards below costa, then oblique and somewhat sinuous, acutely angled outwards above and below vein 5, then inwardly oblique and dentate; subterminal line indistinctly double, black with white points on it, dentate, oblique from costa to below vein 6, then with black streaks in the interspaces to the series of black striæ before termen; a fine whitish line at base of cilia. Hind wing pale yellow, the inner area deeper yellow; a terminal fuscous black band not quite reaching tornus; the termen narrowly yellowish white towards apex; cilia yellowish white with slight dark marks at veins 5 to 3. Underside of fore wing white, a black wedge-shaped mark from costa to lower angle of cell with traces of an oblique line from it to inner margin, terminal area blackish shading to grey at termen and with pale apical patch: hind wing as above but whiter.

Hab. MASHONALAND, Salisbury (*Marshall*), 1 ♂ type; TRANSVAAL, White R. (*Cooke*), 1 ♂. *Exp.* 46-50 millim.

7348. *Ulothrichopus glaucescens*, n. sp. (Plate CCII. fig. 13.)

♀. Head and thorax black-brown mixed with some grey; palpi with some white at base; antennæ with the basal joint white; patagia with red-brown and ochreous patch at base and black line near upper edge; pectus white; legs grey-white and black, the tarsi

black ringed with white; abdomen orange-yellow, the anal tuft brown, the ventral surface white. Fore wing leaden grey with a greenish tinge and irrorated with black-brown; subbasal line black, from costa to submedian fold where there is a tuft of blackish hair at its extremity; antemedial line double, black filled in with red-brown, the inner line indistinct, oblique, waved, some black beyond it in cell; reniform a slight rufous lunule defined by black; a pale spot defined by black below end of cell with a blackish line from it to inner margin; postmedial line black, oblique, slightly sinuous and with some pale rufous before it from costa to above vein 5 where it is angled outwards, then inwardly oblique and dentate; subterminal line double, black, dentate, with some white scales on it, the outer line forming small dentate marks; a series of black striæ before termen; a fine pale line at base of cilia. Hind wing orange-yellow, the costal half paler; the terminal area black-brown; a small yellow apical patch; cilia yellow with a dark line through them except towards apex. Underside of fore wing white, the basal half slightly tinged with yellow, an oblique triangular blackish patch from costa to lower angle of cell with a slight line from it to inner margin; terminal area black with some yellowish at apex; hind wing as above, but the costal half whitish, the terminal band ending at vein 1.

Hab. NATAL, Durban (*Gooch*), 1 ♀ type. *Exp.* 48 millim.

7349. *Ulothrichopus primulina*. (Plate CCII. fig. 14.)

Audea primulina, Hmps. Ann. S. Afr. Mus. ii. p. 326 (1902).

♂. Head and thorax red-brown mixed with some black; antennæ with the basal joint white on outer side; pectus ochreous white; legs rufous mixed with whitish, the tarsi black ringed with white; abdomen orange-yellow, the base whitish, a black bar before the anal tuft which is brownish, the ventral surface white. Fore wing red-brown slightly irrorated with blackish; subbasal line black, from costa to submedian fold; antemedial line indistinctly double, black, slightly excurved below costa, then incurved, and excurved above inner margin; reniform faintly defined by blackish, an oblique black bar above it from costa; a spot defined by black below end of cell; postmedial line black, double towards costa, oblique and slightly sinuous to above vein 5, acutely angled outwards above and below vein 5, then inwardly oblique, dentate, strongly angled inwards at vein 1; subterminal line greyish, dentate and defined on outer side by black streaks in the interspaces, somewhat oblique from costa to below vein 6; a series of black striæ before termen; cilia with a fine pale line at base. Hind wing yellow, the costal half yellowish white; the terminal area fuscous black with a yellowish white apical patch; cilia yellowish white. Underside of fore wing yellowish white with a triangular black-brown patch from costa to lower angle of cell, the terminal area with a more or less

complete blackish band leaving the termen yellowish white; hind wing as above but whiter.

♀. Fore wing with the inner area suffused with black-brown, the disk greyish, an ochreous brown apical patch.

Ab. 1. Fore wing with the inner and terminal areas leaden grey with a greenish tinge.

Ab. 2. Fore wing greyer with the inner area deep black.

Hab. SOMALILAND (*Drake-Brockman*), 1 ♀; BR. E. AFRICA, Eb Urru (*Betton*), 1 ♀; BR. C. AFRICA, Karonga (*Neave*), 1 ♀; BECHUANALAND, Lake N'Gami (*Lugard*), 1 ♀; TRANSVAAL, Pretoria (*Distant*), 1 ♀; NATAL, Estcourt (*Hutchinson*), 3 ♂ type, Durban (*Clark*), 1 ♀; ORANGE R. COLONY, Bloemfontein (*Eckersley*), 1 ♀. *Exp.* 40–46 millim.

7350. *Ulothrichopus phæoleuca*, n. sp. (Plate CCII. fig. 15.)

♂. Head and thorax red-brown suffused with black; pectus white tinged with rufous; tarsi black ringed with white; abdomen creamy white, the anal tuft brownish. Fore wing red-brown suffused with blackish and irrorated with black; subbasal line represented by minute black spots below costa and cell; antemedial line double, the inner line indistinct, the outer black with small spot at costa, erect, waved; reniform represented by a diffused blackish mark, its centre defined by black; a small blackish spot at middle of costa; traces of a spot defined by black below end of cell; post-medial line very indistinct, black, bent outwards below costa, then oblique to above vein 5 where it is angled outwards, then inwardly oblique, dentate and angled inwards at vein 1; a series of slight black streaks in the interspaces below vein 6 to the series of slight black lunules before termen. Hind wing creamy white, the inner area slightly tinged with yellow; a terminal black-brown band from apex to vein 2, continued as a faint narrow reddish brown band to vein 1. Underside of fore wing white, the costa brownish, a black-brown patch from costa to lower angle of cell, the terminal area fuscous brown; hind wing with obsolescent terminal band from apex to vein 3 and small blackish spots on termen between veins 7 and 3.

Hab. BR. C. AFRICA, Zomba (*Manning*), 1 ♂ type. *Exp.* 48 millim.

***7351. *Ulothrichopus stertzi*. (Plate CCII. fig. 16.)**

Audea stertzi, Püng. Iris, xix. p. 225, pl. viii. f. 7 (1906).

♂. Head and thorax grey mixed with brown and black; base of palpi white; patagia with blackish edges; pectus and legs except fore tibiæ white, the tarsi banded with black; abdomen fulvous yellow, white below. Fore wing grey thickly irrorated and streaked with fuscous, the inner area suffused with fuscous to medial line, the base of inner margin pale yellow; subbasal line black, slightly

waved, from costa to submedian fold where there is a slight whitish patch beyond it with blackish marks above it below the cell and on costa; antemedial line double, the inner line indistinct, angled outwards below costa and slightly in submedian fold; claviform and orbicular absent; reniform large, indistinctly defined by black and its centre slightly defined by black; medial line indistinct, bent outwards below costa, excurved round cell, then incurved and with short black streak before it on vein 2; postmedial line double from costa to vein 6, the outer line indistinct, very oblique from costa to below vein 6 where it is acutely angled outwards, then dentate and inwardly oblique, another oblique irregularly dentate line beyond it from costa to vein 6; subterminal line formed of dentate black marks with whitish marks on their inner side, extending to termen below veins 6 and 2; a series of slight blackish lunules just before termen with whitish marks on their outer side; cilia whitish with a black line through them. Hind wing yellowish white, the inner area suffused with fulvous yellow except at base; a brown streak on terminal part of subcostal nervure; a broad fuscous subterminal band not reaching tornus and expanding to termen between veins 6 and 2. Underside white; fore wing with triangular blackish patch from costa to lower angle of cell, both wings with broad subterminal band not reaching tornus and with sinuous inner edge.

Hab. PALESTINE, Dead Sea in Coll. Püngeler. *Exp.* 46 millim.

7352. *Ulothrichopus mesoleuca*. (Plate CCII. fig. 10.)

Audea mesoleuca, Wlk. xv. 1812 (1858).

Ulothrichopus tortuosus, Wllgrn. Svensk. Akad. Handl. v. 4. p. 76 (1865).

♂. Head and thorax red-brown mixed with some grey; pectus brownish white; tarsi blackish ringed with white; abdomen grey-brown, the ventral surface whitish. Fore wing red-brown sparsely irrorated with black; subbasal line black, curved, from costa to submedian fold; antemedial line black, slightly excurved below costa, then incurved and excurved above inner margin; reniform very faintly defined by black; a spot defined by black below end of cell; postmedial line black, oblique from costa to above vein 5 where it is acutely angled outwards, then inwardly oblique and dentate; the postmedial area except towards costa with black streaks in the interspaces to the series of slight black lunules before termen; a fine whitish line at base of cilia. Hind wing fuscous brown, the basal half ochreous white to below the cell; an ochreous white apical patch; cilia ochreous white with brown marks at veins 6 to 2. Underside of fore wing ochreous white, a fuscous brown medial band from costa to submedian fold, the terminal area fuscous shading to brownish grey at termen; hind wing ochreous white, a black striga from middle of costa, the terminal area fuscous black with an ochreous white apical patch.

♀. Fore wing suffused with fuscous black, a paler brown apical patch.

Hab. NATAL, Durban (*Clark*), 1 ♀; CAPE COLONY, Caffraria, type † ♂ in Mus. Stockholm. *Exp.* 48-56 millim.

7353. *Ulothrichopus tinctipennis*. (Plate CCII. fig. 17.)

Audea tinctipennis, Hmps. Ann. S. Afr. Mus. ii. p. 327 (1902).

♂. Head and thorax grey-white mixed with brown; tegulæ and patagia with some black on outer edges; pectus white; tarsi banded with black; abdomen grey-white tinged with brown, the ventral surface white. Fore wing grey-white thickly irrorated with black-brown; subbasal line black, from costa to submedian fold in which there is a tuft of black hair below its extremity; antemedial line black, sinuous, excurved above inner margin; reniform obscurely defined by blackish and with its centre defined by blackish, a dark bar above it from costa; an indistinct spot slightly defined by black below end of cell; postmedial line black, bent outwards below costa, then oblique, acutely angled outwards above and below vein 5, then inwardly oblique, waved, strongly angled inwards at vein 1; subterminal line represented by a series of small dentate white marks defined on outer side by dentate black marks, oblique from costa to below vein 6; a series of black striæ before termen; cilia with a fine white line at base. Hind wing semi-hyaline white, the inner area suffused with brown; the terminal area black-brown; the termen with a white patch at apex, then a series of slight marks in the interspaces; cilia white with slight brown marks at veins 5 to 2. Underside of fore wing white, a conical blackish mark from costa to lower angle of cell, the terminal area black-brown with a whitish patch at apex.

♀. Fore wing with the inner area suffused with blackish.

Hab. N. NIGERIA, Zungeru (*Macfie*), 1 ♂; SOMALILAND (*Drake-Brockman*), 2 ♀; RHODESIA, Bulawayo (*Marshall*), 1 ♂; BECHUANALAND, Lake N'Gami (*Lugard*), 1 ♀ type. *Exp.* 42-48 millim.

7354. *Ulothrichopus phæopera*, n. sp. (Plate CCII. fig. 18.)

♀. Head and thorax brown mixed with grey; tegulæ with slight blackish lines at middle and near tips; tarsi blackish ringed with white; abdomen red-brown mixed with some greyish. Fore wing grey-white mixed with red-brown and dark brown; subbasal line black, from costa to submedian fold in which there is a short black streak beyond its extremity; antemedial line hardly traceable, oblique and slightly waved, a straight black line beyond it from costa to below the cell; reniform a narrow lunule defined by blackish; a small spot defined by black below end of cell; postmedial line indistinctly double, the inner line black, slightly bent outwards below costa, then oblique, acutely angled outwards above vein 5, then inwardly oblique and dentate; a subterminal series of small dentate white marks defined on outer side by dentate black

marks extending except below apex to a crenulate black terminal line defining white points at the extremities of the veins. Hind wing with the basal half of costal area ochreous white, the inner area suffused with reddish brown, the terminal area with fuscous brown; cilia ochreous white with brown spots at the extremities of the veins. Underside of fore wing whitish, the costa and terminal area to submedian fold brown, an oblique blackish band just beyond middle; hind wing white, the costal area and terminal area to vein 2 irrorated with brown, a minute brown discoidal spot and oblique sinuous line from middle of costa to vein 1, a terminal series of small black spots from apex to vein 2.

Hab. BR. E. AFRICA, Njoro (*Cholmley*), 1 ♀ type. *Exp.* 44 millim.

C. Hind wing of male without silky downturned hair on underside.

7355. *Ulothrichopus variegata*.

Audea variegata, Hmps. Ann. S. Afr. Mus. ii. p. 326 (1902).

Head and thorax red-brown mixed with some black and grey; palpi with some whitish at base; pectus ochreous white; tarsi black ringed with whitish; abdomen orange-yellow, the anal tuft brown, the ventral surface pale yellow. Fore wing leaden grey

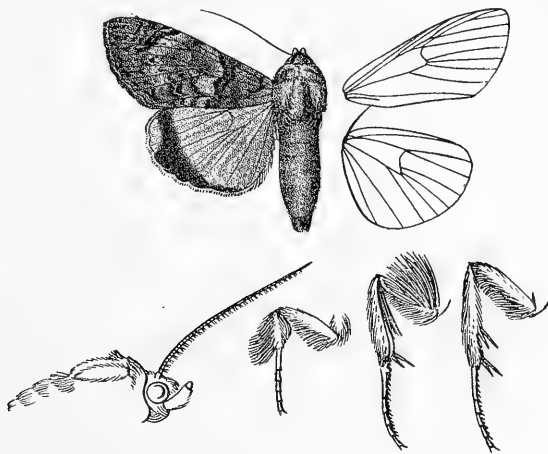


Fig. 22.—*Ulothrichopus variegata*, ♂. $\frac{1}{2}$.

with a greenish tinge and irrorated with black-brown; subbasal line black, from costa to submedian fold where there is a tuft of black hair at its extremity; antemedial line double, black, the inner line indistinct, oblique, waved, with red-brown suffusion before it forming a large patch at inner margin; reniform a small

rufous lunule slightly defined by blackish; an irregular pale spot defined by blackish below end of cell; an indistinct blackish medial line, bent outwards below costa, excurved beyond the cell, then incurved; postmedial line double, blackish, oblique, slightly sinuous and with rufous before it to above vein 5 where it is angled outwards, then inwardly oblique and dentate; subterminal line indistinct, whitish, minutely dentate and defined on outer side by slight dentate black marks, oblique from costa to below vein 6; a series of black striæ before termen connected by streaks with the subterminal line between veins 6 and 3. Hind wing orange-yellow; a terminal black band, its inner edge oblique to vein 2, then narrowing to vein 1 where it terminates; a small yellow apical patch; cilia yellowish white at apex, then dark with pale tips, chequered with fuscous at veins 5 to 3, wholly dark towards tornus. Underside of fore wing with the basal half yellow, a narrow oblique black medial band expanding towards costa, followed by an ochreous white band, then a blackish band from costa to submedian fold, the termen brownish white; hind wing as above but with small yellow spots on the terminal band between veins 5 and 2.

Hab. BR. C. AFRICA, Fort Maungoche (*Neave*), 1 ♀; NATAL, Durban (*Gooch, Leigh*), 1 ♂, 2 ♀ type. *Exp.* 58-60 millim.

Genus **HERMINIOCALA**, nov.

Type, *H. daona*.

Proboscis fully developed; palpi with the 2nd joint upturned to near vertex of head and moderately scaled, the 3rd porrect, moderate, and thickly scaled; frons smooth with tuft of hair above; eyes large, round; antennæ of male with long fasciculate cilia; fore tibiæ moderately fringed with hair, the mid and hind tibiæ smoothly scaled, the fore tibiæ not spined, the hind tibiæ spined; abdomen dorsally flattened, with some rough hair on basal segments but without crests. Fore wing with the apex rounded, the termen evenly curved and hardly crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the cell about half the length of wing; veins 3 and 5 from close to angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

- | | |
|--|------------------|
| A. Fore wing with the patch beyond the cell reniform | <i>daona</i> . |
| B. Fore wing with the patch beyond the cell rather V-shaped,
its lower extremity bent outwards. | |
| a. Fore wing without subterminal line | <i>pallida</i> . |
| b. Fore wing with subterminal line strongly incurved at discal
fold..... | <i>atomosa</i> . |

7356. *Herminiocala daona*.

Ophiodes daona, Druce, A. M. N. H. (6) xiii. p. 362 (1894); id. Biol. Centr.-Am., Het. ii. p. 516, pl. 97. f. 6.

♂. Head and thorax pale ochreous slightly tinged with rufous; antennæ rufous; palpi red-brown, the 3rd joint ochreous; shoulders with red-brown streaks; tibiæ and tarsi suffused with brown;

abdomen ochreous dorsally suffused with red-brown except at base. Fore wing ochreous tinged with rufous and slightly striated with red-brown; a subbasal brown point below the cell; traces of a brown antemedial line angled outwards below the costa, then oblique; a red-brown reniform spot beyond the cell; postmedial line brown, angled outwards below the costa, then oblique to the reniform spot where it terminates. Hind wing with the basal half

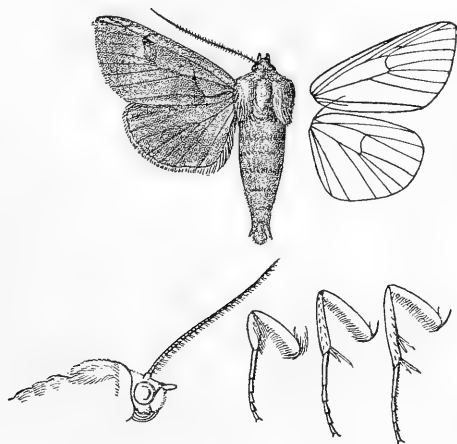


Fig. 23.—*Herminiocala daona*, ♂. 1.

pale ochreous tinged with red-brown, the terminal half suffused with red-brown. Underside of both wings pale ochreous tinged with rufous; fore wing with small brown discoidal spot and indistinct diffused postmedial line, excurved below costa, then oblique to the submedial fold where it terminates; hind wing with small discoidal spot and slight curved postmedial line from costa to vein 3.

Hab. MEXICO, Orizaba; GUATEMALA; COSTA RICA, Candelaria Mts. (Underwood), 2 ♂, Godman-Salvin Coll. *Exp.* 48 millim.

7357. *Herminiocala pallida*. (Plate CCIII. fig. 1.)

Rhosologia pallida, Schaus, A. M. N. H. (8) viii. p. 219 (1911).

♀. Head, thorax, and abdomen pale ochreous faintly tinged with red-brown; antennæ brown; palpi except at extremity and sides of frons dark brown; tibiæ and tarsi suffused with brown. Fore wing pale ochreous faintly tinged with red-brown and sparsely irrorated with large black scales; a rather V-shaped patch just beyond the cell filled in with reddish brown and defined by some black scales, its lower extremity slightly bent outwards. Hind wing pale ochreous slightly tinged with brown, the area beyond the

cell somewhat darker. Underside of both wings with small blackish discoidal spots; fore wing with some blackish suffusion on postmedial area from below costa to submedian fold.

Hab. COSTA RICA, Juan Vinas (*Schaus*), 1 ♀. *Exp.* 48 millim.

*7358. **Herminiocala atomosa.** (Plate CCIII. fig. 2.)

Rhosologia atomosa, Schaus, A. M. N. H. (8) viii. p. 218 (1911).

♂. Head and thorax pale brownish ochreous, the tegulæ irrorated with a few black scales; a black streak on vertex of head and tegulæ; palpi black-brown except at tips; frons with lateral black points; antennæ brown except at base; shoulders and legs black-brown; abdomen ochreous, dorsally suffused with reddish brown, ventrally irrorated with black and with lateral black spots on 2nd and 3rd segments. Fore wing greyish ochreous with faint red-brown striæ and irrorated with black scales; the costal edge rufous; a subbasal black point below the cell; traces of a curved antemedial line and of a claviform stigma; a black point in middle of cell; some rufous suffusion at end of cell with the reniform on it defined by black-brown except above and an elliptical black spot just beyond lower angle of cell met by a brown line from costa below which it is angled outwards; a brown subterminal line arising from apex, oblique to discal fold and slightly angled outwards below vein 7, excurved and obsolescent below discal fold; a series of black points just before termen. Hind wing ochreous tinged with rufous, the terminal area suffused with fuscous brown; a terminal series of black points from apex to vein 2; cilia reddish ochreous; the underside ochreous, the costal area tinged with rufous and irrorated with brown, a small black discoidal spot, slight curved postmedial line, almost obsolete below vein 5, and terminal series of black points.

Hab. COSTA RICA, Juan Vinas (*Schaus*), type ♂ in U.S. Nat. Mus. *Exp.* 46 millim.

Genus **ECCRITA.**

Eccrita, Led. Noct. Eur. p. 207 (1857) *Type.*
ludicra.

Proboscis fully developed; palpi upturned, the 2nd joint reaching to about middle of frons and broadly scaled, the 3rd short with tuft of scales in front; frons smooth; eyes large, round; antennæ of male ciliated; thorax clothed almost entirely with scales and without crests; tibiæ slightly fringed with hair, the fore tibiæ not spined, the mid and hind tibiæ strongly spined; abdomen dorsally flattened and without crests. Fore wing narrow, the margins subparallel, the apex rounded, the termen evenly curved and not crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the cell half the length of wing; veins 3, 4 from angle; 5 fully developed from well above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

- A. Fore wing with the subterminal line incurved at discal fold... *ludicra*.
 B. Fore wing with the subterminal line not incurved at discal fold *maxima*.

7359. *Eccrita ludicra*.

Noctua ludicra, Hübn. Beitr. ii. 4. p. 95, pl. 3. f. R (1789); id. Eur. Schmett., Noct. f. 319; Godt. Léop. Fr. v. p. 128, pl. 56. f. 2; Frr. Neue Beitr. pl. 483. f. 3; Herr.-Schäff. Eur. Schmett., Noct. f. 241; Friv. Tudom. Akad. Erkön. Kot. xi. Darab iv. 1865, p. 168, pl. 8. f. 4; Staud. Cat. Lep. pal. p. 251.

Eccrita cervina, Staud. Iris, v. p. 372 (1892).

Eccrita gracilis, Staud. Iris, ix. p. 270 (1896).

Head and thorax grey tinged with brown and irrorated with dark brown, the vertex of head and tegulæ deep chocolate-brown, some white between antennæ; palpi and mid and hind legs suffused

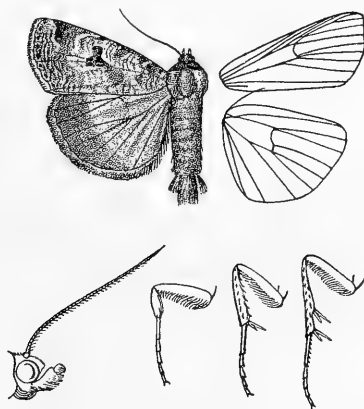


Fig. 24.—*Eccrita ludicra*, ♂. $\frac{1}{2}$.

with brown; abdomen grey, the anal tuft and ventral surface tinged with red-brown. Fore wing grey striated with red-brown, the costa and terminal area suffused with red-brown; traces of a pale curved subbasal line from costa to submedian fold; antemedial line pale defined on outer side by red-brown, forming a small spot below the cell, curved, obsolescent towards inner margin; a red-brown bar from middle of costa; reniform red-brown defined on inner side by a black bar above and triangular spot below, on outer by a black point above two small spots at lower extremity and a slight streak below; a strongly incurved line from cell to vein 1 with some red-brown suffusion beyond it; postmedial line very slight, sinuous, oblique to vein 4, then incurved; a patch of red-brown suffusion on costal area before the subterminal line, which is dark to vein 6, then very slight, pale and excurved; a series of minute brown spots before termen; cilia whitish at base. Hind wing whitish tinged with red-brown, the terminal area suffused

with red-brown; the underside with the costal area suffused with red-brown, a slight discoidal spot and curved postmedial line.

Ab. 1. *cervina*. Fore wing slightly browner.—Mongolia; E. Siberia.

Ab. 2. *gracilis*. Slightly smaller and paler.—Mongolia.

Hab. AUSTRIA, Zeller and Leech Colls., Moravia; HUNGARY, Leech Coll.; RUSSIA, Urals; ? ASIA MINOR, Pontus; W. TURKESTAN, Issyk-kul; W. SIBERIA, Altai; E. TURKESTAN, Ili; MONGOLIA, Uliassutai; E. SIBERIA, Dahuria, Ussuri. *Exp.* 44–46 millim.

7360. *Eccrita maxima*.

Toxocampa maxima, Brem. Lep. Ost-Sib. p. 57, pl. 5. f. 17 (1864); Staud. Cat. Lep. pal. p. 252.

Toxocampa enormis, Butl. A. M. N. H. (5) i. p. 290 (1878); id. Ill. Het. B.M. ii. p. 38, pl. 32. f. 9.

Head and thorax grey with a few dark brown scales, the vertex of head and tegulæ except at tips deep red-brown; mid legs dark brown, the fore and hind legs suffused with brown; abdomen grey, dorsally tinged with brown except towards extremity, ventrally irrorated with brown. Fore wing grey striated with dark brown and tinged in parts with brown; antemedial line brown, angled outwards below costa, then incurved; a black point in middle of cell; reniform with brownish striga in centre defined on inner side by two black bars and on outer by three small black spots at upper angle of cell and three at lower angle; some diffused brown on middle of costa and a strongly incurved shade from lower angle of cell to inner margin, a brownish shade beyond it between veins 3 and 1; postmedial line diffused, brownish, excurved below costa and at middle, incurved at discal fold and below vein 4; a brown shade on costal area before the pale slightly sinuous subterminal line; a series of black points just before termen; the veins of terminal area pale. Hind wing greyish suffused with brown except on disk and terminal area; a fuscous brown subterminal shade, broad towards costa, narrowing to termen near tornus; a series of black points just before termen; cilia whitish. Underside of both wings whitish with broad fuscous subterminal shade and slight discoidal spots.

Ab. 1. *enormis*. Rather larger and browner.

Hab. E. SIBERIA, Amurland, 1 ♂, 1 ♀, Ussuri; JAPAN, Oiwaké (Pryer), 1 ♂, 1 ♀, Shimonoseki (Leech), 1 ♀, Tokio (Maries), 1 ♂, 1 ♀, Yokohama (Jonas, Pryer, Manley), 3 ♂, 1 ♀ type *enormis*, Nikko (Maries), 2 ♀; COREA, Gensan (Leech, Ito), 2 ♀. *Exp.* 60–72 millim.

Genus **METATACHA**, nov.

Type, *M. excavata*.

Proboscis fully developed; palpi upturned, the 2nd joint reaching to about middle of frons and moderately scaled, the 3rd moderate; frons smooth; eyes large, round; antennæ of male ciliated; thorax clothed almost entirely with

scutes and without crests; fore and mid tibiae moderately fringed with hair, the hind tibiae fringed with rather long hair above and below, the fore and hind tibiae not spined; abdomen with dorsal ridges of hair on basal segments, but without crests. Fore wing with the apex rounded, the termen evenly curved, crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the termen excised between veins 6 and 2; the cell about half the length of wing; veins 3, 4 from angle; 5 fully developed from above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

7361. *Metatacha excavata*.

Ercheia excavata, Beth.-Baker, A. M. N. H. (8) iii. p. 431 (1909).

Head and thorax brown mixed with some grey; palpi whitish at base, fuscous at tips; pectus whitish; tarsi brown ringed with white; abdomen ochreous brown, the ventral surface whitish. Fore wing brown mixed with whitish, some white on postmedial area

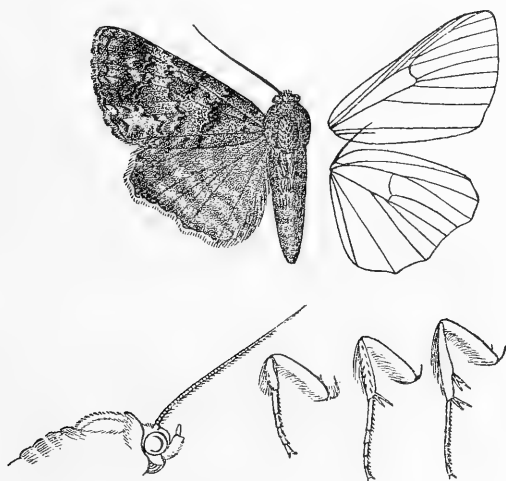


Fig. 25.- *Metatacha excavata*, ♂. ♀.

in discal fold and between veins 3 and 2; subbasal line slight, blackish, angled inwards to near base at median nervure and with brown marks beyond it at costa and below the cell; antemedial line black, rather diffused, oblique, minutely waved, with dark brown suffusion before it from costa to vein 1; orbicular represented by a dark point, the reniform by an ill-defined dark lunule with point below it and two dark striæ above it from costa; medial line arising from a small black spot on costa well beyond the cell, minutely waved and inwardly oblique from costa to below vein 2, then outwardly oblique and sinuous, another indistinct minutely waved line beyond it from vein 5 to inner margin; postmedial line arising from the same point as the medial line, strongly bent outwards

and obsolescent below costa, then double, blackish filled in with whitish, waved, incurved at discal fold and below vein 4 and bent outwards to inner margin; subterminal line dark brown, minutely dentate, incurved at discal fold and below vein 3, a crenulate black line beyond it before termen; a terminal series of slight dark striæ. Hind wing brown with a faint reddish tinge; traces of an oblique dark medial line; a more distinct obliquely incurved postmedial line and a diffused subterminal line; cilia white. Underside of fore wing brownish white, the terminal area suffused with fuscous brown except at costa and towards tornus, a diffused oblique medial line, and postmedial line diffused and ex-curved to vein 3, then incurved; hind wing whitish tinged in parts with brown especially on inner area, a black discoidal spot, double crenulate postmedial line bent inwards to costa and oblique towards tornus, diffused subterminal line, and dark band on termen from above vein 6 to below 2.

Hab. UGANDA, Entebbe (*Neave*), 1 ♂, L. Kioga (*Neave*), 1 ♀. *Exp.* 56 millim. Type† ♀ in Coll. Bethune-Baker.

Genus **CHELECALA**, nov.

Type, *C. trefoliata*.

Proboscis absent; palpi porrect, extending to just beyond the frons, thickly scaled; frons smooth; eyes large, round; antennæ of female ciliated; thorax clothed with hair and scales mixed, the prothorax with spreading crest, the metathorax without crest; tibiæ moderately fringed with hair, the fore tibiæ short with large curved claw on inner side at extremity, the hind tibiæ spined between the mid and terminal spurs only; abdomen with some rough hair at base of dorsum but without crests. Fore wing with the apex rounded, the termen evenly curved, crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the cell half the length of wing; veins 3, 4 from angle; 5 fully developed from just above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

7362. *Chelecala trefoliata*.

Gnamptonyx trefoliata, Butl. P. Z. S. 1898, p. 423.

♀. Head and thorax grey mixed with dark brown and some reddish brown; tarsi blackish ringed with white; abdomen whitish irrorated with brown. Fore wing grey-white mixed with reddish brown; faint traces of a sinuous dark antemedial line; orbicular a small black annulus in upper part of cell; reniform defined by black, its lower part produced to lobes beyond and below lower end of cell and angled inwards on median nervure to before the orbicular; postmedial line with small dark spot at costa, then very indistinct, obliquely curved to the outer lobe of the reniform and slightly incurved below it; subterminal line very indistinct, angled inwards at discal fold to near the postmedial line and angled inwards at vein 2; a series of black points just before termen. Hind wing white tinged with brown, the terminal area irrorated with brown;

a series of black striæ just before termen and slight waved terminal dark line; the underside white, the costal area and the terminal

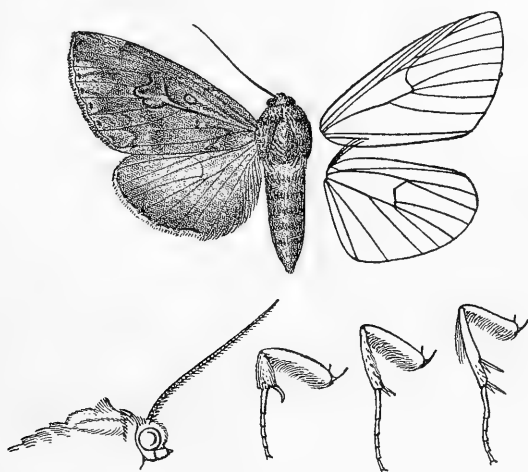


Fig. 26.—*Chelecala trefoliata*, ♀. 1.

area to vein 2 irrorated with brown, a slight black discoidal lunule and series of black striæ just before termen.

Hab. BR. E. AFRICA, Voi (*Betton*), 1 ♀ type. *Exp.* 60 millim.

Genus **TACHOSA.**

Type.

Tachosa, Wlk. Proc. N. H. Soc. Gläsg. i. p. 345 (1873) *acronyctoides*.

Proboscis fully developed; palpi upturned, the 2nd joint reaching about to middle of frons and moderately scaled, the 3rd moderate, frons smooth; eyes large, round; antennæ of male with fasciculate cilia; thorax clothed almost entirely with scales and without crests; tibiæ moderately fringed with hair, the fore tibiæ not spined, the hind tibiæ spined between the medial and terminal spurs only; abdomen with ridges of hair on basal segments. Fore wing rather long and narrow, the apex rounded, the termen evenly curved and hardly crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the cell half the length of wing; veins 3, 4 from angle; 5 fully developed from just above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

7363. *Tachosa acronyctoides*.

Tachosa acronyctoides, Wlk. Proc. N. H. Soc. Glasg. i. p. 345 (1873).

Head and thorax brown mixed with white; palpi blackish, white towards base and with the extremity of 2nd joint white; head white at sides, the frons with lateral black bars; antennæ blackish, white at base; tegulæ with black line at base and white line near tips; pectus white tinged with ochreous; abdomen

ochreous brown. Fore wing white mixed with red-brown and fuscous; subbasal line slight, blackish, sinuous, from costa to submedian fold; antemedial line indistinct, dark slightly defined on inner side by white, sinuous, sometimes produced and somewhat bifid in cell; two black discoidal points and a small spot above end of cell; a large whitish spot defined by black below end of cell, its outer edge excised; the veins beyond the cell with slight dark streaks; postmedial line black slightly defined on outer side by white, minutely waved, oblique from costa to vein 4, then inwardly

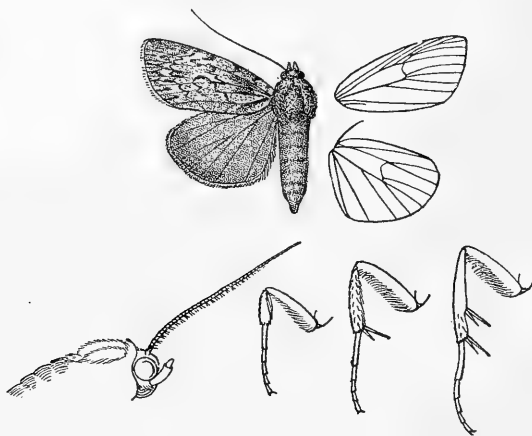


Fig. 27.—*Tachosa acronyctoides*, ♂. †.

oblique; subterminal line white, dentate, oblique from costa to below vein 7; the terminal area with slight black streaks in the interspaces; cilia fuscous intersected with whitish. Hind wing reddish brown, the terminal area tinged with fuscous; the underside brownish ochreous with the terminal area fuscous.

Hab. S. NIGERIA, Lagos, Olokemiji (*Dudgeon*), 1 ♂, 2 ♀, Ilesha (*Humfrey*), 1 ♀; CONGO (*Marsden*), 1 ♂ type. *Exp.* 42–46 millim.

Genus **LOPHOTIDIA**, nov.

Type, *L. trisema*.

Proboscis fully developed; palpi upturned, the 2nd joint reaching to middle of frons and moderately scaled, the 3rd short, porrect; frons with transverse ridge not clothed with scales, a corneous plate below it and flattened tuft of scales above; eyes large, round; antennæ of male with fascicles of cilia; thorax clothed almost entirely with scales and without crests; tibiæ moderately fringed with hair, the fore tibiæ slightly spined at extremity, the hind tibiæ spined; abdomen without crests. Fore wing long and narrow, the apex rounded, the termen evenly curved and not crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the cell more than half the length of wing; veins 3, 4 from angle; 5 fully developed from just above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

7364. *Lophotidia trisema*, n. sp.

♂. Head, tegulæ, and a bar on prothorax black mixed with brownish grey, the rest of thorax whitish mixed with brown; pectus ochreous white; legs black mixed with ochreous white, the tarsi ringed with white; abdomen ochreous white. Fore wing whitish tinged in parts with ochreous and brown and irrorated with black, the costal area browner to end of cell, the inner area except at base and the terminal area except at apex suffused with blackish; a slight subbasal black spot defined on outer side by red-brown on costa; antemedial line black defined on inner side by red-brown and towards inner margin by whitish, oblique, sinuous; a slight black discoidal lunule with oblique blackish mark above it from costa, a somewhat figure-of-eight shaped pale mark defined by black before it from discal to submedian folds with a slight dark

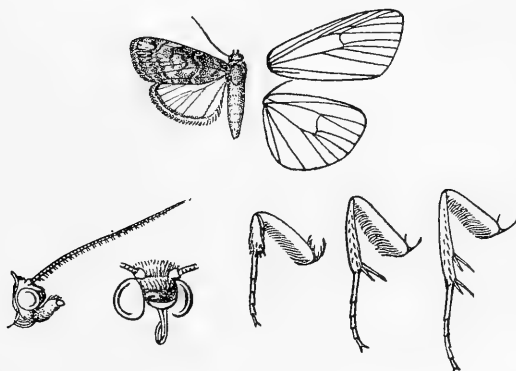


Fig. 28.—*Lophotidia trisema*, ♂. 1.

line from it to inner margin; postmedial line double, dark filled in with whitish and with whitish suffusion before it, excurved and minutely dentate, the outer line with a blackish mark at costa and a dentate black mark below vein 7 with an elliptical ochreous mark above it extending to termen; subterminal line slight, white, waved, interrupted at the ochreous mark; a waved black terminal line with short black streaks before it below veins 7 and 6. Hind wing white, the termen and base of cilia brown except towards tornus; the underside with the costal area slightly irrorated with brown.

Hab. BR. E. AFRICA, Kirbehs (*Betton*), 1 ♂ type. *Exp.* 28 millim.

Genus **HYPOTACHA**, nov.

Type, *H. retracta*.

Proboscis fully developed; palpi upturned, the 2nd joint reaching to about middle of frons and moderately scaled, the 3rd short, porrect; frons smooth

with large flattened tuft of scales above; eyes large, round; antennæ of male with fasciculate cilia; thorax clothed almost entirely with scales and without crests; tibiæ moderately fringed with hair; fore tibiæ not spined, the hind tibiæ spined between the medial and terminal spurs only; abdomen smoothly scaled and without crests. Fore wing rather long and narrow, the apex rounded, the termen evenly curved and not crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the cell more than half the length of wing; veins 3, 4 from angle; 5 fully developed from just above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

- A. Fore wing with the postmedial line retracted to lower angle of cell.
- a. Hind wing wholly tinged with brown *nigristria*.
 - b. Hind wing white, the termen suffused with brown.
 - a¹. Fore wing with the lines not defined by yellow, a small white spot beyond lower angle of cell *retracta*.
 - b¹. Fore wing with the lines defined by yellow, no small white spot beyond lower angle of cell *indecisa*.
 - B. Fore wing with the postmedial line not retracted to lower angle of cell *ochribasalis*.

7365. *Hypotacha nigristria*. (Plate CCIII. fig. 3.)

Audea nigristria, Hmps. Ann. S. Afr. Mus. ii. p. 329 (1902).

♀. Head and thorax brown tinged with purplish grey and with a few blackish scales; palpi and lower part of frons blackish; tegulæ with blackish medial band; pectus and legs blackish, the tarsi ringed with whitish; abdomen brownish grey irrorated with fuscous. Fore wing grey-brown slightly suffused with fuscous; subbasal line black, sinuous, from costa to submedian fold; ante-medial line black, oblique and slightly sinuous to submedian fold, then incurved; a slight blackish mark at middle of costa and strong black streak in end of cell; postmedial line black, excurved from below costa to just above vein 3, then retracted to the streak in end of cell and oblique to inner margin; subterminal line very indistinct, pale faintly defined on inner side by fuscous, slightly angled outwards at vein 7, then minutely waved; the interspaces of terminal area with slight black streaks; a fine terminal black line. Hind wing ochreous white, the inner area tinged with brown, the terminal area suffused with brown; cilia ochreous white; the underside irrorated with fuscous especially on costal and terminal areas, a faint discoidal spot.

Hab. CAPE COLONY, Transkei (*Miss F. Barrett*), 1 ♀ type. *Exp.* 40 millim.

7366. *Hypotacha retracta*.

Audea retracta, Hmps. Ann. S. Afr. Mus. ii. p. 329 (1902).

Head and thorax grey mixed with brown and fuscous; palpi white in front towards base; lower part of frons blackish; abdomen ochreous white dorsally tinged with brown. Fore wing grey-white mixed with brown and fuscous, the veins streaked with blackish; a slight subbasal brown striga from costa and oblique

black streak in submedian interspace; antemedial line black and brown, oblique to median nervure and slightly angled inwards at subcostal nervure, angled inwards at vein 1 and outwards above inner margin; a blackish shade at end of cell and spot above it on costa; a small wedge-shaped white spot beyond lower angle of cell; postmedial line red-brown and black, oblique to vein 6, then minutely waved, at vein 3 retracted to origin of vein 2 and again bent outwards at submedian fold; subterminal line diffused, whitish, oblique to apex and somewhat excurved at middle; the interspaces of terminal area with slight black streaks ending in white points; cilia chequered fuscous and whitish. Hind wing pure white, the termen and base of cilia brown to vein 2, in female extending to



Fig. 29.—*Hypotacha retracta*, ♂. 1.

tornus. Underside of fore wing white, the costa and terminal area to submedian fold brownish, an oblique black postmedial striga from costa; hind wing with the costal area slightly irrorated with blackish, an oblique black postmedial striga from costa.

Hab. TRANSVAAL, White R. (*Cooke*), 1 ♀; NATAL (*Marshall*), 1 ♂, Estcourt (*Hutchinson*), 4 ♂, 6 ♀ type; CAPE COLONY, Transkei (*Miss F. Barrett*), 1 ♂. *Exp.* 36–38 millim.

7367. *Hypotacha indecisa*.

Anthophila indecisa, Wlk. xii. 829 (1857); Hmps. Moths Ind. ii. p. 481. *Caradrina sabulosa*, Swinh. P. Z. S. 1884, p. 516, pl. 47. f. 6.

Head and thorax grey irrorated with black; palpi white at base; pectus and legs white, the tibiae tinged with fuscous, the tarsi black ringed with white; abdomen white dorsally suffused with fuscous brown, the anal tuft fulvous. Fore wing grey suffused with brown and irrorated with black, the medial and terminal areas more or less suffused with black; subbasal line fulvous yellow defined on inner side by black, waved, from costa to sub-

median fold; antemedial line fulvous yellow defined on outer side by black, waved, somewhat oblique; a blackish discoidal mark and mark on costa above end of cell; postmedial line fulvous yellow defined on inner side by black, bent outwards below costa, then minutely waved, at vein 3 retracted to lower angle of cell and waved to inner margin; subterminal line whitish defined on inner side by black suffusion, dentate, slightly angled outwards at vein 7 and middle; a terminal series of white points defined by a waved black line. Hind wing white, the terminal area suffused with fuscous brown except towards tornus; cilia white tinged with brown at apex or to vein 2; the underside usually with the costal area irrorated with brown and with slight brown postmedial spots on veins 8, 7.

Hab. ADEN (*Yerbury*), 1 ♀; PUNJAB, Wuzeerabad (*Hearsey*), 1 ♂ type, Murree (*Harford*), 1 ♀, Rawal Pindi (*Yerbury*), 1 ♀, Campbellpur (*Yerbury*), 5 ♂, 3 ♀, Khairabad (*Yerbury*), 1 ♀, Allahabad, 1 ♀; SIND, Hubb R. (*Swinhoe*), 1 ♀, Karachi (*Swinhoe*), 1 ♂ type *sabulosa*. *Exp.* 24–32 millim.

7368. *Hypotacha ochribasalis*.

Pseudophia ochribasalis, Hmps. P. Z. S. 1896, p. 264, pl. x. f. 31.

Head and thorax ochreous, the tegulæ tinged with fuscous; pectus and legs white, the fore tibiæ tinged with fuscous, the tarsi ringed with fuscous; abdomen white dorsally tinged with fuscous. Fore wing ochreous, suffused with black from the antemedial line to termen; subbasal line black with some fuscous before it on costal area, waved, from costa to submedian fold; antemedial line black, slightly sinuous; a slight black discoidal lunule defined on outer side by ochreous; postmedial line black defined on outer side by ochreous, excurved below costa, at middle and above inner margin, incurved at discal fold and below vein 4; subterminal line whitish, angled outwards below vein 7 and at middle; a terminal series of whitish points; cilia whitish at tips. Hind wing white, the termen fuscous from apex to vein 2; cilia white, fuscous towards apex.

Hab. ADEN (*Yerbury*, *Nurse*), 1 ♂, 2 ♀ type. *Exp.* ♂ 24, ♀ 28 millim.

Genus **CRYPSTIDIA**.

Crypsotidia, N. C. Roths. Nov. Zool. viii. p. 432 (1901) *Type.* *volastoni*.

Proboscis fully developed; palpi with the 2nd joint obliquely porrect and broadly scaled towards extremity, the 3rd rather long; frons smooth with tuft of hair above; eyes large, round; antennæ of male with long cilia; thorax clothed almost entirely with scales and without crests; fore coxæ and femora of male tufted with long hair, the tibiæ moderately fringed with hair, the fore and hind tibiæ not spined; abdomen smoothly scaled and without crests. Fore wing long and narrow, the apex rounded, the termen evenly curved and not crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing

with the cell more than half the length of wing; veins 4, 5 typically shortly stalked; 5 fully developed from lower angle of cell; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

SECT. I. Palpi with the 3rd joint long, downturned and thickly scaled; hind wing with veins 3, 4 shortly stalked, 5 from angle of cell.

7369. *Crypsotidia mesosema*, n. sp.

Hypoglaucitis sp., Longstaff, Butterfly Hunting, pl. v. f. 5.

♂. Head and thorax brown mixed with grey and fuscous; tarsi blackish ringed with white; abdomen ochreous white irrorated with brown, the ventral surface white. Fore wing grey-white suffused with red-brown and irrorated with blackish; a subbasal black striga from costa; antemedial line blackish defined on inner side by whitish, oblique, sinuous; a blackish mark from middle of

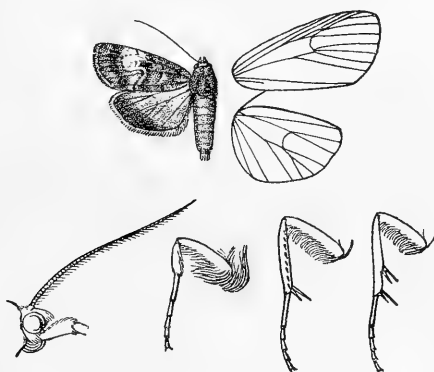


Fig. 30.—*Crypsotidia mesosema*, ♂. 1.

costa and some blackish suffusion in and below end of cell; post-medial line black defined on outer side by whitish, excurved and minutely waved from below costa to vein 4, then retracted to lower angle of cell and again excurved above inner margin; subterminal line whitish defined on inner side by fuscous, minutely dentate and with dentate black marks before it above and below vein 7; a waved black terminal line defining a series of white points; cilia white at tips. Hind wing ochreous white, the terminal area brown; cilia ochreous white; the underside with the costal area irrorated with fuscous, a slight waved postmedial black line from costa to discal fold, subterminal shade except towards tornus, and some black points in submedian fold.

Ab. 1. Hind wing tinged with reddish brown.

Hab. SUDAN, Khartum (*Longstaff*), 2 ♂ type; BR. E. AFRICA, Kilima'njaro (*Jackson*), 1 ♂. Exp. 28–30 millim.

SECT. II. Palpi with the 3rd joint porrect, moderate; hind wing with veins 4, 5 shortly stalked.

- | | |
|--|---------------------|
| A. Fore wing with the postmedial line retracted to lower angle of cell | <i>voolastoni</i> . |
| B. Fore wing with the postmedial line not retracted to lower angle of cell | <i>conifera</i> . |

7370. *Crypsotidia voolastoni*.

Crypsotidia voolastoni, N. C. Roths. Nov. Zool. viii. p. 432 (1901); id. idem, xii. pl. iv. f. 33.

♂. Head and tegulæ red-brown; thorax whitish tinged with red-brown; legs fuscous brown mixed with some grey; abdomen whitish tinged with red-brown, the ventral surface darker. Fore wing whitish irrorated with red-brown, the costal and terminal areas broadly suffused with red-brown; a dark red-brown antemedial patch from cell to inner margin, its outer edge excurved

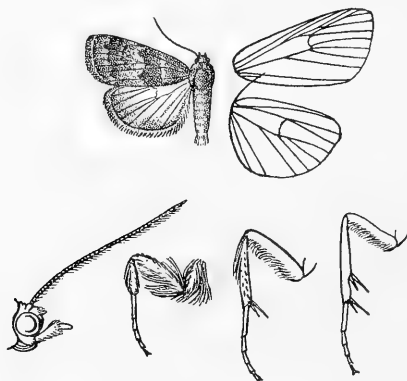


Fig. 31.—*Crypsotidia voolastoni*, ♂. $\frac{1}{2}$.

below submedian fold; postmedial line slight, brown faintly defined on outer side by whitish, bent outwards below costa, excurved and minutely waved to vein 3, then retracted to lower angle of cell and forming the outer edge of the dark patch; traces of a pale subterminal line, angled outwards at vein 6 and excurved at middle; a terminal series of whitish points defined by a waved brown line. Hind wing ochreous white, the veins of terminal area and termen tinged with red-brown; cilia ochreous white, brownish at apex; the underside with the costal area irrorated with red-brown, the apical area suffused with red-brown, an oblique crenulate postmedial line from costa to vein 6.

Hab. EGYPT, Shendi, type † in Coll. Rothschild; ABYSSINIA, Harrar (*Degen*), 1 ♂. *Exp.* 34 millim.

7371. *Crypsothidia conifera*, n. sp. (Plate CCIII. fig. 4.)

♂. Head black with some grey, the vertex whitish; thorax whitish mixed with black; legs black mixed with grey, the tarsi ringed with white; abdomen brownish white with black lateral streaks, the ventral surface irrorated with black. Fore wing ochreous brown irrorated with black, a diffused black medial patch from cell to inner margin, the terminal area suffused with black except at costa; antemedial and medial blackish points on costa and a faint discoidal mark; postmedial line blackish, bent outwards and obsolescent below costa, excurved and minutely waved to vein 4, then oblique and sinuous; a whitish subterminal line angled outwards at vein 7 and excurved at middle; a terminal series of white striae defined on inner side by black. Hind wing white, the termen tinged with fuscous except towards tornus; cilia tinged with fuscous at apex; the underside with the costal area irrorated with black, the apex suffused with black, an excurved postmedial line from costa to vein 7.

♀. Paler and more ochreous.

Hab. N. NIGERIA, Zungeru (*Macfie*), 1 ♀; BR. C. AFRICA, Raronga Distr., N. Rukuru Valley (*Neave*), 1 ♂ type. *Exp.* 30 millim.

Genus ACANTHODICA.

Type.

Acanthodica, Schaus, Trans. Am. Ent. Soc. xxi. p. 241 (1894)..... *grandis*.

Proboscis fully developed; palpi obliquely upturned, the 2nd joint reaching to middle of frons and moderately scaled, the 3rd minute; frons with transverse rounded ridge-shaped prominence; eyes large, round; antennae of male with long fasciculate cilia, the basal joint with large tuft of hair; thorax clothed chiefly with scales, the prothorax with rather ridge-like crest, the metathorax with depressed crest; tibiae moderately fringed with hair, the fore tibiae not spined, the hind tibiae spined, the hind tibiae of male with the medial spurs absent; abdomen long, with dorsal crests on basal segments. Fore wing long and very narrow, the apex rounded, the termen slightly crenulate, excised below vein 2; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole, which is sometimes small with veins 7 and 10 from beyond it; 11 from cell. Hind wing with the cell about half the length of wing; veins 3, 4, 5 from angle; 6, 7 from upper angle; 8 anastomosing with the cell near base, then approximated to it for a short distance.

- A. Fore wing with the postmedial line single, erect and slightly excurved below costa.
 - a. Fore wing with the inner medial area white *splendens*.
 - b. Fore wing with the medial area not white.
 - a¹. Fore wing with white apical patch *penicilla*.
 - b¹. Fore wing with pale brownish apical patch.
 - a². Fore wing with some green on median nervure and subterminal area.
 - a³. Fore wing with the inner medial area not dark purple-brown *cabra*.
 - b³. Fore wing with the inner medial area dark purple-brown *hages*.

- b*². Fore wing without green on median nervure or subterminal area.
- a*³. Fore wing with the inner medial area dark purple-brown *grandis*.
- b*³. Fore wing with the inner medial area not purple-brown *emittens*.
- B. Fore wing with the postmedial line indistinctly double, bent outwards below costa and oblique below discal fold.
- a*. Fore wing with pale apical patch.
- a*¹. Fore wing with the apical patch white and wedge-shaped *drucei*.
- b*¹. Fore wing with the apical patch pale brownish and rounded *lignaris*.
- c*¹. Fore wing with the apical patch pale brownish and shading off to pale brownish and white points on termen *fosteri*.
- b*. Fore wing without pale apical patch.
- a*¹. Hind wing with the veins, inner area, and termen suffused with brown *xylinoides*.
- b*¹. Hind wing with the veins, inner area, and termen white *chiripa*.

7372. *Acanthodica splendens*.

Agrotis splendens, Druce, Biol. Centr.-Am., Het. i. p. 286, pl. xxvii. f. 15 (1889).

Magusa apicimacula, Maassen, Stübel's Reise, p. 147, pl. vii. f. 2 (1890).

♂. Head, tegulæ, and prothorax rufous, the rest of thorax grey-white with the upper edge and tips of patagia dark brown, the metathorax with some brown; antennæ, palpi, frons, pectus, legs, and abdomen red-brown. Fore wing reddish brown mixed with

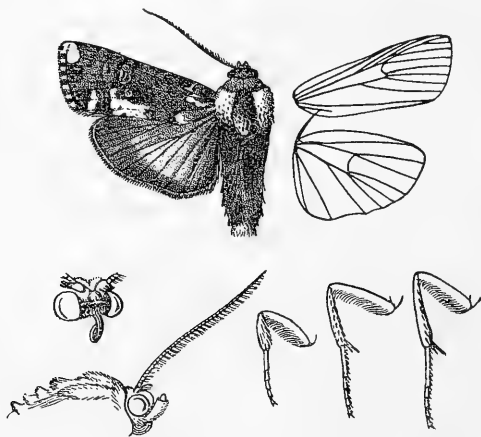


Fig. 32.—*Acanthodica splendens*, ♂. 1.

grey and mottled and striated with darker brown; double subbasal blackish striæ from costa and a small black spot below the cell defined on outer side and below by a semicircular white mark; an antemedial white spot on inner margin; a slight sinuous

blackish medial line defined on inner side by greenish grey; a small white spot in lower part of cell towards extremity with blackish striga above it from costa; reniform whitish tinged with brown, constricted at middle and connected with the costa by a grey bar defined by dark striæ; a round white spot defined by brown and with some fulvous in its upper part below end of cell; postmedial line black defined on outer side by greenish grey, very slightly excurved from costa to vein 3; the inner area white from the medial to the postmedial line, before which it extends to vein 3 and with blackish points at middle on vein 1 and inner margin; some whitish points on postmedial part of costa; a white subterminal band from below vein 3 to inner margin; a round apical white patch with a series of black points defined on inner side by white before termen from it to inner margin; a fine dark terminal line. Hind wing semihyaline whitish tinged with red-brown, the veins and marginal areas red-brown; a postmedial series of minute dark streaks on the veins; an oblique whitish bar from vein 1 to tornus; cilia white at base; the underside with the costal area white irrorated with brown, a diffused dark patch at middle of costal area, oblique postmedial bar followed by a series of points on the veins, and some dark suffusion at apex.

Hab. PANAMA, Chiriqui (*Champion*), 3 ♂ type; ECUADOR, Sarayacu (*Buckley*), 1 ♂, Chiguinda (*Buckley*), 1 ♂, Loja, 3 ♂. *Exp.* 50 millim.

7373. *Acanthodica penicilla*.

Agrotis penicillum, Feld, Reis. Nov. pl. 109. f. 33 (1874).

Acanthodica pamela, Schaus, Pr. U.S. Nat. Mus. xxx. p. 105 (1906).

♂. Head, tegulæ, and prothorax rufous, the rest of thorax grey-white; palpi pale brownish, dark above; frons with lateral blackish bars; pectus and legs rufous mixed with black-brown, the fore tibiæ whitish with a dark line at middle; abdomen pale red-brown, the extremity whitish. Fore wing brownish grey, striated and in parts suffused with brown, some green on median nervure and subterminal area; subbasal black striæ from costa and submedian fold with a grey patch beyond them with small black spot on its outer edge above the submedian fold; antemedial line black defined on inner side by grey at costa, erect and slightly sinuous; orbicular with ill-defined grey-white annulus constricted at middle; reniform with ill-defined grey-white annulus, elliptical, a black striga above it from costa defined on each side by grey; a round grey-white spot defined on outer side by blackish below end of cell; a slight curved dark shade beyond the cell; postmedial line black, somewhat oblique and slightly sinuous from below costa to discal fold; some pale points on postmedial part of costa; a faint greenish grey subterminal shade; a round white apical spot with series of black points defined on inner side by whitish from it to inner margin before termen; cilia with a series of blackish spots at base. Hind wing semihyaline white; the veins brown; the inner area tinged with red-brown; a slight oblique red-brown

shade from lower angle of cell to inner margin; a postmedial series of minute dark streaks on the veins; some brown suffusion on apical part of termen and a dark terminal line; the underside with the costal area white irrorated with black, a diffused black patch at middle of costal area, discoidal bar and bar on inner area, an oblique postmedial striga from costa followed by a series of points on the veins, a terminal series of black lunules from apex to vein 2, then a line to near tornus.

Hab. GUATEMALA, type ♂ in Coll. Rothschild; BRAZIL, Castro Paraña (*D. Jones*), 4 ♂; PARAGUAY, Sapucay (*Foster*), 2 ♂. *Exp.* 42-48 millim. Type ♂ *pamela* in U.S. Nat. Mus.

***7374. *Acanthodica cabra*. (Plate CCIII. fig. 5.)**

Acanthodica cabra, Dogn. Ann. Soc. Ent. Belge, xxxviii. p. 683 (1894).

Head and tegulæ pale red-brown, the palpi, a V-shaped mark above frons, and fasciæ on middle and sides of tegulæ dark brown; thorax dark red-brown; abdomen red-brown, paler at sides, the anal tuft ochreous. Fore wing ochreous brown slightly irrorated with black; the veins slightly streaked with greenish; a double waved black subbasal line from costa to submedian fold filled in with greenish, and with a small tuft of black scales beyond it below the cell; the antemedial line waved, interrupted at middle, with a greenish spot before it below costa and a bifid black spot above and below vein 1; a blackish spot on middle of costa and slight striga from lower angle of cell to submedian fold; a postmedial series of rather diffused black points oblique from costa to vein 5, then inwardly oblique, with a similar more prominent series of small black striæ beyond it; a blackish patch with some pale points on it on costa towards apex leaving a semicircular pale brown patch at apex; subterminal line diffused silvery greenish, from below costa to inner margin; a series of small black spots just before termen. Hind wing whitish, the veins, inner and terminal areas fuscous brown, an ill-defined oblique whitish line from vein 5 to tornus with small blackish spots before and beyond it below vein 1; the underside whitish, the costal area tinged with ochreous, the costal and terminal areas irrorated with black, a waved medial black line from costa to vein 5 and from submedian fold to inner margin, a postmedial series of points on the veins with a spot at costa, excurved below costa, then oblique to tornus, a diffused subterminal waved line somewhat interrupted at middle, a terminal series of spots.

Hab. ECUADOR, Loja, type ♂ in Coll. Dognin; PERU, Carabaya, Quinton (*Ockenden*), 1 ♀. *Exp.* 52 millim.

***7375. *Acanthodica hages*. (Plate CCIII. fig. 6.)**

Acanthodica hages, Druce, A. M. N. H. (7) v. p. 518 (1900).

♂. Head and tegulæ black-brown; thorax red-brown tinged with grey and irrorated with a few black scales; palpi greyish

brown with black-brown streaks; pectus black-brown in front; legs ochreous brown, the tibiæ banded with black-brown, the tarsi black-brown with pale rings; abdomen black-brown, the extremity pale ochreous. Fore wing pale grey-brown mottled with rather darker brown and irrorated with a few black scales, some green on median nervure and subterminal area; a subbasal black bar from costa with a somewhat trilobate mark faintly defined by black beyond it in and below the cell; antemedial line double, greyish, the inner line with black points on costa and median nervure, the outer with black bar from costa, then slightly defined on outer side by black, erect and somewhat sinuous; the inner medial area deep purple-brown from before the antemedial to the postmedial line, indented by a grey-brown spot slightly defined by black below end of cell; orbicular very faintly defined by grey, the reniform with faint grey annulus slightly defined by black, both somewhat constricted at middle and large; a black bar from costa to the reniform; postmedial line black defined on outer side by purple-brown, slightly excurved below costa, then erect, very slightly sinuous and interrupted by grey points at veins 5, 3, 1; a small blackish spot beyond it at vein 5; a black-brown patch on costal area with grey point on costa before the faint pale subterminal line, excurved below vein 7 and waved below vein 5, a small dentate black mark on it below vein 7, some brown beyond it at middle, and brown mottling towards tornus; a series of black points before termen except towards apex; a terminal series of slight black striæ; cilia with a series of small dark spots. Hind wing semihyaline white, the veins brownish, the inner area clothed with red-brown hair; a postmedial series of minute black streaks on veins 5 to 1; a terminal black-brown line; the underside with the costal area irrorated with black-brown, an angled bar from middle of costa, oblique postmedial bar followed by short black streaks on the veins, the terminal line lunulate from apex to vein 2.

Hab. COLOMBIA, Minca (*H. H. Smith*), type † ♂ in Coll. Druce.
Exp. 52 millim.

*7376. *Acanthodica grandis*. (Plate CCIII. fig. 7.)

Acanthodica grandis, Schaus, Trans. Am. Ent. Soc. xxi. p. 241 (1894).

♀. Head and thorax grey tinged with brown, the tegulæ and prothorax red-brown, the patagia with some blackish scales towards tips; 2nd joint of palpi with blackish streaks; frons with dark bars at middle and above; fore tibiæ with blackish striæ, the mid and hind tibiæ with blackish bands, the tarsi streaked with blackish; abdomen grey suffused with brown, the ventral surface purplish brown towards base, ochreous white towards extremity. Fore wing grey tinged and striated with brown, the inner half of medial area purple-brown; a small brown patch at base defined by a curved dark line from costa to vein 1; subbasal line represented by black striæ from costa and submedian fold, the latter

with black point beyond it; antemedial line blackish, erect, slightly waved; orbicular and reniform with slight whitish annuli faintly defined by black, both somewhat constricted at middle; a round ochreous spot below end of cell slightly defined by blackish and with whitish point in centre; postmedial line black, slightly sinuous, oblique to vein 5, then erect, a fuscous patch beyond it on costal area with grey points on costa; a grey-white apical patch defined by black; subterminal line very indistinct, whitish defined on each side by patches of fuscous brown, waved; a series of small black spots before termen; cilia chequered with fuscous at tips. Hind wing semihyaline white, the veins brown; a dark point at lower angle of cell and brown shade from it to inner margin; a faint brown postmedial line ending at tornus; the terminal area suffused with brown narrowing to tornus; the underside with two black discoidal striæ, diffused blackish medial and postmedial bars from costa, punctiform postmedial line, and blackish streak in base of submedian fold.

Hub. MEXICO, Coatepec (*Schaus*), type † ♂ in U.S. Nat. Mus. *Exp.* 54 millim.

*7377. *Acanthodica emittens*. (Plate CCIII. fig. 8.)

Agrotis emittens, Wlk. xi. 737 (1857).

♀. Head and thorax ochreous tinged with red-brown and irrorated with a few dark brown scales, the vertex of head and tegulæ more rufous; palpi streaked with brown; frons with lateral brown bars; legs banded with dark brown; (abdomen wanting). Fore wing greyish tinged with red-brown and irrorated with a few black-brown scales; a subbasal black bar from costa; antemedial line slight, black, excurved below costa, then slightly sinuous; orbicular, reniform and a spot below the cell with faint pale annuli, elliptical, the reniform somewhat constricted at middle and a black striga above it from costa; postmedial line black with red-brown band on its outer side, arising below costa, somewhat oblique and excurved, a slight black streak beyond it in discal fold; a dark brown patch on costal area with pale point on costa before the subterminal line which is represented by a series of slight blackish spots and striæ, the spots below vein 7 dentate and extending to near termen; a series of minute black spots faintly defined on inner side by whitish before termen; the cilia with a series of small dark spots. Hind wing semihyaline white, the veins and inner margin tinged with brown; a terminal brown band, broad at costa, narrowing to tornus; cilia white tinged with red-brown; the underside with the costal area irrorated with dark brown and with oblique blackish medial and postmedial bars, the terminal area suffused with brown to vein 4 and with a subterminal series of short dark streaks on the veins.

Hub. JAMAICA, type † ♀ in Mus. Oxon. *Exp.* 54 millim.

7378. *Acanthodica drucei*. (Plate CCIII. fig. 9.)*Calocampa drucei*, Dogn. Le Naturaliste (2) iii. p. 67 (1889).

♂. Head and tegulae black-brown with pale brown V-shaped mark above frons; thorax red-brown, the patagia edged with whitish above at extremity; tibiae and tarsi with ochreous and dark brown streaks; abdomen black-brown, the anal tuft and ventral surface pale rufous. Fore wing red-brown suffused with black except basal half of costal area and terminal half below vein 5; subbasal and antemedial black spots on costa; an antemedial greyish patch on vein 1; the antemedial line obsolete except towards inner margin where it is angled inwards on vein 1 and outwards above margin; a blackish point with some grey scales round it below middle of cell; a double postmedial series of black points on the veins, oblique from costa to vein 5, then inwardly oblique, erect at inner margin; some pale points on costa towards apex; a semicircular white patch at apex more or less tinged with brown; a series of white and black points just before termen becoming dark striæ on the white patch; cilia grey and blackish. Hind wing fuscous brown, the interspaces pale in and below cell; a curved black bar on a whitish patch above tornus; cilia whitish with a blackish line through them; the underside whitish, the costal and terminal areas irrorated with black, a diffused black patch on middle of costa, a discoidal lunule, an irregularly waved postmedial line, incurved to costa and oblique to tornus, a diffused subterminal band expanding towards costa, a terminal series of small black spots becoming a line below vein 2 and bent outwards on to the cilia below vein 1.

The ground-colour of head, thorax and fore wing may be pale olive-brown more or less suffused with dark brown.

Hab. ECUADOR, Loja, 2 ♂; PERU, Huancabamba, 1 ♂, Chancamayo, 2 ♂; BOLIVIA, Yungas la Paz, 1 ♂. *Exp.* 52 millim. Type † ♂ in Coll. Dognin.

7379. *Acanthodica lignaris*. (Plate CCIII. fig. 10.)*Acanthodica lignaris*, Schaus, Trans. Am. Ent. Soc. xxi. p. 242 (1894).

♂. Head and thorax red-brown with a few dark scales, the meta-thorax with some greenish grey; palpi brownish ochreous with dark streaks at sides; frons brownish ochreous with dark lateral bars; fore tibiae pale with dark streaks; tarsi banded with blackish; abdomen red-brown, the anal tuft and ventral surface pale. Fore wing red-brown irrorated with black, the costal area more ochreous brown to the postmedial line; double subbasal and antemedial black striæ from costa filled in with dark brown and a black antemedial line from submedian fold to inner margin, incurved at vein 1 and strongly bent inwards to inner margin, a whitish patch followed by some blackish before it below vein 1; orbicular and

reniform with faint ochreous brown annuli, the latter somewhat constricted at middle; a faint ochreous brown spot with blackish centre below origin of vein 2; an oblique dark striga from middle of costa; postmedial line with double blackish striæ from costa, bent outwards below costa, then double, somewhat punctiform, and obliquely curved to inner margin; some pale points on postmedial part of costa; a pale apical spot with rufous centre; a series of black points defined on inner side by white before termen and a bar in submedian interspace; cilia with a series of slight blackish spots near base. Hind wing red-brown, the interspaces rather paler to beyond middle; a subterminal black bar defined on each side by white below vein 1; a dark terminal line slightly defined on inner side by whitish; cilia white with a brown line through them almost obsolete at middle, wholly brown towards tornus; the underside white irrorated with black-brown except on inner area, a dark spot near base of costa, dark discoidal lunule with dark mark above it, postmedial line bent outwards below costa, then obsolescent with dark points at the veins, sinuous, and angled inwards at discal fold, a terminal series of black lunules and some dark suffusion on apical part of terminal area.

Hab. BRAZIL, Casa Branca, 1 ♂, Castro Paraña (*D. Jones*), 2 ♂; PARAGUAY, Sapucay (*Poster*), 2 ♂. *Exp.* 38-48 millim.

7380. *Acanthodica fosteri*, n. sp. (Plate CCIII. fig. 11.)

♂. Head and thorax red-brown mixed with some ochreous, the prothoracic crest darker, the metathorax with white spots; palpi greyish ochreous with dark streaks; frons with dark lateral bars; legs pale, streaked with brown; abdomen red-brown, the anal tuft and ventral surface towards extremity reddish ochreous. Fore wing red-brown irrorated with a few ochreous scales, the costal area reddish ochreous from the subbasal to the postmedial line; double subbasal black striæ from costa; double curved antemedial black striæ from costa and a line on inner area incurved at vein 1 and strongly bent inwards to inner margin, a grey patch before it below vein 1; orbicular and reniform with reddish ochreous annuli, the former round, the latter somewhat constricted at middle; a small reddish ochreous annulus below end of cell and an oblique waved brown striga from middle of costa; postmedial line with double dark striæ from costa, bent outwards below costa, then indistinctly double with slight black points at the veins, oblique below discal fold; some grey points on postmedial part of costa; a faint obliquely curved ochreous subterminal line from discal to submedian folds with slight blackish streaks before it on the veins; a greyish apical patch shading off to a terminal series of minute greyish spots; a series of black striæ before termen with white points on their inner side; cilia greyish at tips. Hind wing red-brown; two subterminal black striæ on vein 1 defined on inner sides by white; cilia with a fine whitish line at base and

whitish tips except towards apex and tornus; the underside grey-white irrorated with black-brown, the inner area suffused with brown, a dark discoidal lunule connected with an oblique bar from costa, postmedial line bent outwards below costa, then sinuous and strongly incurved at discal fold, an irregular rather maculate black-brown subterminal band.

Hab. PERU, 1 ♂; PARAGUAY, Sapucay (*Foster*), 12 ♂ type. *Exp.* 42-46 millim.

7381. *Acanthodica xylinoides*. (Plate CCIII. fig. 12.)

Acanthodica xylinoides, Schaus, Trans. Am. Ent. Soc. xxi. p. 242 (1894).

♂. Head and thorax ochreous brown mixed with red-brown and some dark brown; palpi pale with dark streaks at sides; frons with lateral dark bars; legs pale with dark streaks; abdomen reddish brown, the ventral surface paler. Fore wing ochreous brown suffused with red-brown and with slight dark irroration, the inner area browner; a subbasal blackish spot on costa and small spot below the cell; double oblique antemedial blackish bars from costa and an indistinct double sinuous line from cell to inner margin, angled inwards at vein 1 and bent inwards to inner margin; reniform with faint pale annulus, an oblique brown striga above it from costa; a pale round spot defined by brown below end of cell; postmedial line with double dark strigæ from costa, bent outwards below costa, then indistinctly double, oblique and slightly sinuous below discal fold; the apical part of costal area with some dark suffusion and small pale spots on costa; a series of white points before termen; a terminal series of dark strigæ; cilia with a series of slight dark spots. Hind wing semihyaline white, the veins brown, the inner area tinged with red-brown; the costal area and termen to vein 5 suffused with red-brown; a dark terminal line and double bar filled in with white above tornus; cilia white, brown at apex and towards tornus; the underside with the costal area white irrorated with black-brown, a black spot near base of costa, discoidal lunule with diffused patch above it on costal area, postmedial series of minute black streaks on the veins, the apical part of terminal area with dark suffusion, a terminal series of blackish lunules.

Ab. 1. Fore wing variegated with whitish, the stigmata defined by white and the spot below the cell white.

Ab. 2. Fore wing pale ochreous brown except the inner area and dark marks on costal area.

Ab. 3. Similar, but fore wing with the ground-colour creamy white.

Hab. PANAMA, Canna Mines (*Tylecote*), 1 ♂; ECUADOR, Loja, 1 ♂; PERU, Pozuzo, 1 ♂; BRAZIL, Castro Paraña (*D. Jones*), 1 ♂; PARAGUAY, Sapucay (*Foster*), 17 ♂. *Exp.* 40-48 millim.

*7382. *Acanthodica chiripa*. (Plate CCIII. fig. 13.)*Acanthodica chiripa*, Dogn. Ann. Soc. Ent. Belge, xxxviii. p. 683 (1894).

♂. Head and thorax pale reddish brown irrorated with black; frons blackish above; abdomen brownish grey, the dorsal crests and a series of lateral spots blackish. Fore wing grey suffused with pale reddish brown and slightly irrorated with black; a subbasal black spot just below costa; a minutely waved antemedial line bent inwards to costa and inner margin with a maculate black band before it from costa to just below the cell; orbicular indistinct, figure of 8-shaped, greyish with two small tufts of raised black scales on it, and two obliquely placed below the cell; reniform indistinct, greyish with two small black tufts of scales on it and one on its outer edge; the postmedial line fine, black, minutely waved, interrupted, bent outwards below costa and strongly incurved below vein 4, defined by whitish on outer side beyond which is a somewhat diffused brown line with short blackish streaks at the veins; a blackish fascia in discal fold from the postmedial line to near termen; the subterminal line represented by a series of short brownish streaks in the interspaces, excurved from costa to vein 4, then incurved; a series of small black and white spots just before termen; cilia with crenulate black line through them. Hind wing semihyaline white; two short black striæ before termen below vein 1, with a black mark beyond them on the cilia; a waved black line on termen between veins 4 and 2; the underside with the costal area irrorated with black and the costa tinged with brown, a black discoidal lunule; a postmedial series of points on the veins with large spot on costa, excurved below costa, then oblique to tornus, a terminal series of points.

Hab. ECUADOR, Loja, type ♂ in Coll. Dognin. *Exp.* 40 millim.

Genus **COCYTODES**.

Cocytodes, Guen. Noct. iii. p. 41 (1852) Type. *cærulea*.

Proboscis fully developed; palpi upturned, the 2nd joint reaching to middle of frons and rather broadly scaled, the 3rd short and thickly scaled; frons smooth; eyes large, round; antennæ of male simple; thorax clothed with hair only and without crests; tibiæ fringed with long hair and all spined; abdomen dorsally flattened and entirely clothed with woolly hair. Fore wing rather narrow, the margins subparallel, the apex rounded, the termen evenly curved and crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the cell about one-third length of wing; veins 3, 4 from upper angle; 5 fully developed from just above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

SECT. I. Abdomen of male with dorsal ribbed corneous plate towards extremity ; hind wing with the inner margin fringed with long hair ; both sexes with the termen truncate below vein 2.

7383. *Cocytodes cærulea*.

Cocytodes cærulea, Guen. Noct. iii. p. 41, pl. 13. f. 10 (1852) ; Hmps. Moths Ind. ii. p. 486.

Head and thorax red-brown, the tegulae slightly tipped with grey, the thorax with a few grey scales ; palpi grey-brown ; pectus and fringes of hair on femora ochreous white ; tarsi fuscous with pale rings ; abdomen fuscous glossed with blue, the ventral surface ochreous white except towards extremity. Fore wing glossy

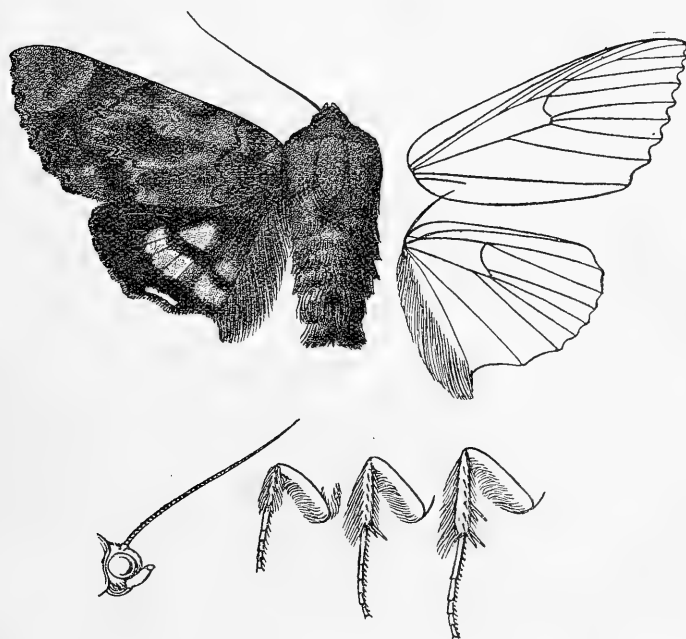


Fig. 33.—*Cocytodes cærulea*, ♂. 1.

fuscous brown slightly irrorated with white, the costal area and cell red-brown interrupted by an oblique dark band beyond the postmedial line ; subbasal line black, oblique, sinuous, from costa to submedian fold ; the antemedial area with the dark brown extending to just below costa ; antemedial line black, oblique, sinuous ; a minute black spot in middle of cell ; reniform defined

at sides by black and with curved black striga in centre, small; a faint diffused oblique dark bar from middle of costa and indistinct diffused oblique line from vein 3 to inner margin; postmedial line black; oblique and sinuous to vein 4, then incurved and slightly waved; subterminal line indistinct, slightly waved, pale on the red-brown area, slightly defined on inner side by blackish on the dark area, crossed by faint blackish streaks above and below vein 5; a series of minute dark spots just before termen. Hind wing fuscous brown; a black postmedial line excurved beyond the cell, with a silvery blue patch before it beyond the cell and some silvery blue in submedian interspace, a silvery blue band beyond it from below vein 6 to tornus interrupted at submedian fold and by slight dark streaks on the veins beyond the cell; an oblique silvery blue bar from vein 2 to termen at vein 1; cilia white at tips below apex. Underside of fore wing fuscous brown, a black discoidal lunule and curved postmedial line defined on each side by bluish grey suffusion; hind wing with the end of cell and inner area silvery blue, a black discoidal lunule, black postmedial band from costa to submedian fold with a slight line from it to tornus and followed by a silvery blue band, a slight curved silvery blue sub-terminal line.

Hab. JAPAN, Nikko (*Maries*), 1 ♂, Tokio (*Maries*), 1 ♂, Yokohama (*Jonas, Manley, Strickland*), 3 ♀, Oiwaké (*Pryer*), 1 ♂, Kiushiu, 1 ♀; C. CHINA, Da-laen-saen (*J. J. Walker*), 1 ♀, Kiukiang (*Pratt*), 1 ♀; W. CHINA, Chang-yang (*Pratt*), 1 ♂, Omei-shan, 1 ♀, Ni-tou, 1 ♂, Chia-kou-ho (*Pratt*), 1 ♂, Ta-chien-lu (*Pratt*), 1 ♀; PUNJAB, Kasauli (*Barrow*), 1 ♂, 1 ♀, Dharmasála (*Hocking*), 2 ♀; SIKHIM, 2 ♀; ASSAM (*Badgley*), 1 ♂, 2 ♀, Shillong (*Parish*), 1 ♂, 3 ♀, Khásis (*Parish*), 1 ♂; MADRAS, Wynád, 1 ♀, Nilgiris (*Hampson*), 1 ♂, 1 ♀; CEYLON (*Templeton*), 1 ♀; BR. N. GUINEA, Ekeikei (*Pratt*), 1 ♂, 3 ♀; NEW HEBRIDES (*Mathew*), 2 ♂, 4 ♀; NEW CALEDONIA (*Layard*), 2 ♂, 1 ♀; LOYALTY Is., Lifu (*Whitmee*), 1 ♀; FIJI, 1 ♀, Viti Levu, 1 ♂, 1 ♀, Matuhu (*Challenger Coll.*), 1 ♂. *Exp.* 74-98 millim.

Larva. Hmps. Ill. Het. B.M. ix. p. 104, pl. 176. f. 5.

Black, the somites with transverse dorsal white bars, each enclosing a black line; stigmata ochreous ringed with black and with some red round them, placed on white patches from near the top of each of which arises a white hair; an interspiracular disconnected white line defined above and below by black stripes with a white hair from below each spiracle; a broad ventral white stripe; 11th somite with dorsal black prominence; the extremity orange above spotted with black; head and somites with sparse long white hairs; all the prolegs present. Food-plants: Gt. Himalayan Nettle and *Bœhmeria*.

SECT. II. Abdomen of male without dorsal corneous ribbed plate; hind wing with the inner margin dilated into a lobe at middle, the termen not truncate below vein 2.

7384. *Cocytodes maura*.

Arcte maurus, Holl. Psyche, vii. p. 50, pl. ii. f. 2 (1894).

Head and thorax red-brown; palpi whitish in front; pectus greyish tinged with red-brown; legs pale red-brown, the tarsi blackish ringed with whitish; abdomen fuscous brown with a faint bluish gloss, the ventral surface pale reddish brown. Fore wing red-brown tinged in parts with fuscous and irrorated with a few white scales; the extreme base of wing black; subbasal line black, angled inwards in cell and ending at submedian fold; antemedial line black, angled outwards below costa, then oblique, sinuous; orbicular a small round black spot; reniform represented by a curved black bar with small spot beyond it; traces of a dark medial line excurved beyond the cell and incurved below vein 4; post-medial line black, oblique to vein 6, slightly incurved at discal fold,

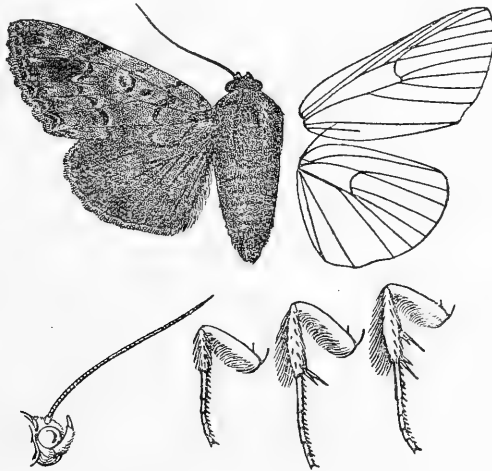


Fig. 34.—*Cocytodes maura*, ♂. 1.

incurved below vein 4, a faint dark shade beyond it and a diffused black patch between veins 6 and 4 extending to near termen; a faint pale waved subterminal line, the area beyond it blackish from vein 4 to submedian fold; a terminal series of black lunules defined on inner side by pale reddish. Hind wing fuscous brown with a cupreous gloss; traces of an oblique dark line from vein 5 to tornus faintly defined on outer side by greyish; the underside grey-brown, a black discoidal spot, narrow curved black postmedial band, and subterminal shade faintly defined on outer side by greyish.

Hab. SIERRA LEONE, Batkanu (*Fitzgerald*), 1 ♂; GOLD COAST, Bibianaha (*Spurrell*), 1 ♂; NIGERIA, Old Calabar (*Crompton*, *Sampson*), 2 ♂, 2 ♀, Sapele (*Sampson*), 3 ♂, 3 ♀, Ilesha (*Humfrey*), 4 ♀; GABOON, Ogové R., 1 ♂, co-type; UGANDA, Entebbe (*Minchin*), 1 ♂. *Exp.* 60-70 millim.

Genus PARAGARISTA.

Paragarista, Beth.-Baker, Nov. Zool. xiii. p. 255 (1906) *albostriata*. Type.

Proboscis fully developed; palpi upturned, the 2nd joint reaching to vertex of head and rather broadly scaled, the 3rd long and slightly dilated at tip; frons smooth, with tuft of hair; eyes large, round; antennæ of male minutely ciliated; thorax clothed with hair mixed with some scales and scale-like hairs and without distinct crests; tibiæ moderately fringed with hair, the fore and hind tibiæ not spined; abdomen clothed with rough hair at base but without crests. Fore wing with the apex rounded, the termen evenly curved and slightly crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the cell less than half length of wing; veins 3, 4, 5 from lower angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

*7385. *Paragarista albostriata*.

Paragarista albostriata, Beth.-Baker, Nov. Zool. xiii. p. 255 (1906).

♂. Head, tegulæ, and patagia deep chocolate-brown irrorated with white; thorax orange; palpi at base, sides of frons and

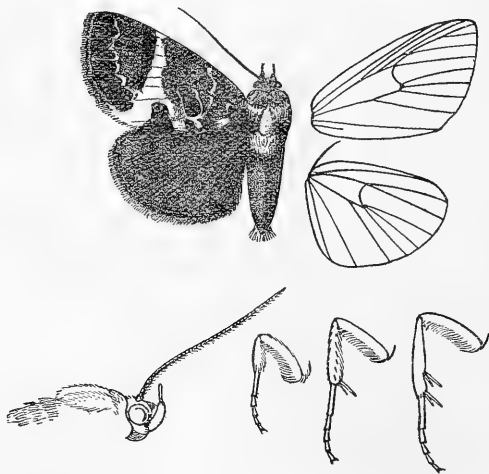


Fig. 35.—*Paragarista albostriata*, ♂. 1.

pectus yellowish white; abdomen chocolate-brown suffused with blue, the base orange, the anal tuft yellowish white. Fore wing

chocolate-brown with an olive tinge, the base of inner margin with some yellowish white suffusion; mediau nervure and vein 1 on basal area streaked with blue; subbasal line bluish white, from costa to vein 1; antemedial line bluish white, incurved from costa to vein 1 and forming a whitish bar at inner margin; an oblique elliptical spot defined by blue-white on medial area from cell to vein 1; a postmedial pale yellow band, oblique and nearly straight from costa to submedian fold where it forks, one branch on outer edge of the elliptical spot tinged with blue, the other branch to tornus; the veins of terminal area streaked with blue; subterminal line formed of striae, blue to vein 4, then pale yellow and bent inwards to the postmedial band. Hind wing black suffused with metallic blue; cilia pale yellow at tips except at apex, middle and tornus.

Hab. BR. NEW GUINEA, Aroa R. (*Meek*), type † ♂ in Coll. Bethune-Baker. *Exp.* 58 millim.

Genus **CALLOPHISMA**, nov.

Type, *C. flavicornis*.

Proboscis fully developed; palpi upturned, the 2nd joint reaching to vertex of head and broadly scaled, the 3rd long; frons smooth, with sharp tuft of hair; eyes large, round; antennæ of male with bristles and cilia; thorax clothed with hair and hair-like scales and without crests; tibiae of male fringed with long hair, the mid tibiae spined; abdomen with dorsal ridges of hair on basal segments and hairy crest at base. Fore wing with the apex rounded, the termen evenly curved and slightly crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the cell about one-third length of wing; veins 3, 4 from angle; 5 fully developed from just above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

7386. *Callophisma flavicornis*, n. sp.

Head and thorax dark brown mixed with grey; palpi black, the 3rd joint orange-yellow except at base; sides of frons black; antennæ orange-yellow; pectus and legs dark brown mixed with white, the tarsi orange-yellow; abdomen bluish white, the basal crest with brown mixed, the anal tuft dark brown, the ventral surface white thickly irrorated with brown. Fore wing dark brown mixed with blue-grey and suffused with black except on basal and terminal areas; antemedial line dark, oblique, sinuous, the grey area extending to just beyond it; postmedial line very indistinct, slightly defined on outer side by silvery grey from costa to vein 4, bent outwards below costa, incurved at discal fold and below vein 4; subterminal line diffused, dark, defined on inner side by silvery grey suffusion except towards costa, excurved below costa and at middle and ending at tornus. Hind wing with the basal area white tinged with silvery blue, extending on inner area

to tornus, the rest of wing fuscous black; cilia tipped with white below vein 2. Underside of fore wing deep fuscous; hind wing

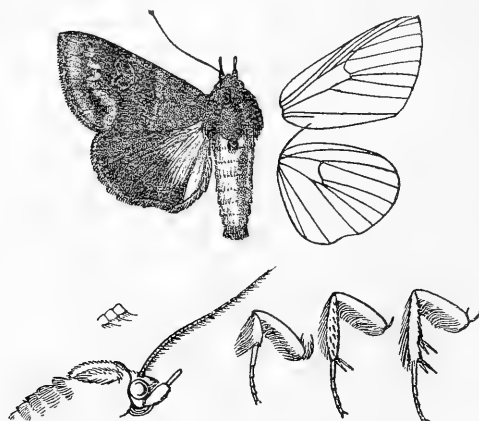


Fig. 36.—*Callophisma flavicornis*, ♂. $\frac{1}{2}$.

fuscous brown irrorated with blue-white except on apical area, the inner area blue-white.

Hab. S. NIGERIA, Akassa (*Lugard*), 1 ♂ type; UP. CONGO (*Wollaston*), 1 ♀; SUDAN, White Nile (*Dunn*), 1 ♀. *Exp.* 52–56 millim.

Genus **EGYBOLIS**.

<i>Caloptera</i> , Blanch. Hist. Ins. ii. p. 363 (1845), nec Guér. Dipt.	Type.
1830	<i>vaillantina</i> .
<i>Egybolis</i> , Boisd. Delegorgue Voy. Afr. Austr. ii. p. 595 (1847).	<i>vaillantina</i> .
<i>Egybolia</i> , Wlk. iii. 755 (1855)	<i>vaillantina</i> .

Proboscis fully developed; palpi obliquely upturned, the 2nd joint reaching to above vertex of head and broadly scaled, the 3rd moderate and thickly scaled; frons smooth with slight tuft of hair above; eyes large, round; antennæ of male bipectinate with moderate branches to apex; thorax thickly clothed with long hair and without crests; tibiæ moderately fringed with hair, the fore and hind tibiæ not spined; abdomen with dorsal ridges of hair on basal segments but without crests. Fore wing with the apex rounded, the termen evenly curved and hardly crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the cell about half the length of wing; veins 3, 4 from angle; 5 fully developed from just above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

- A. Fore wing with the subbasal band broad and not interrupted *vaillantina*.
 B. Fore wing with the subbasal band narrow and interrupted in the cell *dohertyi*.

7387. *Egybolis vaillantina*.

Bombyx vaillantina, Stoll, Suppl. Cram. p. 142, pl. 31. f. 3 (1790); Saund. Trans. Ent. Soc. (2) iv. p. 59, pl. 114. ff. 3 *a-c*; Kirby, Cat. Lep. Hct. p. 393.

Caloptera formosa, Blanch. Hist. Ins. ii. p. 376, pl. 17. f. 6 (1845).

Egybolis natalii, Boisd. Delegorgue Voy. Afr. Austr. ii. p. 595 (1847).

Egybolia vaillantiana, Angas, Kaffr. Illustr. pl. 30. f. 19 (1849).

Head deep orange, the back of head, thorax and abdomen black shot with brilliant metallic blue; fore tibiae orange in front, the mid and hind tibiae orange at extremities. Fore wing brilliant metallic blue; a broad deep orange subbasal band edged by black lines, its inner edge sinuous, its outer edge excurved and slightly incurved at vein 1; an elliptical orange discoidal spot with smaller

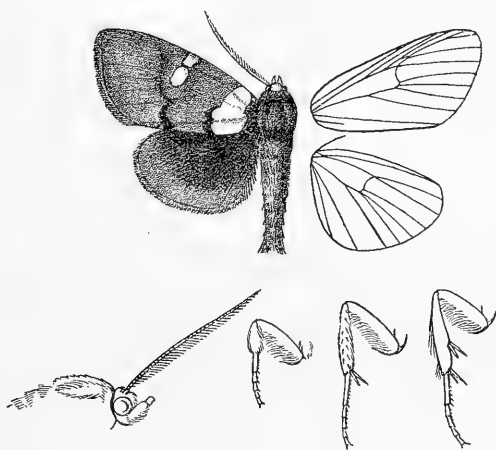


Fig. 37.—*Egybolis vaillantina*, ♂. †.

spot above it from costa, both edged by black; an indistinct post-medial black line arising below the costa, oblique to below vein 4, then incurved, sometimes with an orange striga at inner margin and rarely one beyond the cell. Hind wing black, the inner margin, veins of terminal half, and the terminal area brilliant metallic blue. Underside of both wings black suffused with brilliant metallic blue.

Hab. CONGO, 1 ♀; ZANZIBAR (*Trimen*), 1 ♀; BR. E. AFRICA, Pemba I. (*Burt*), 1 ♂, Mombasa (*de la Garde*), 2 ♀; UGANDA, Wadelai (*Emin Pasha*), 1 ♀; GERM. E. AFRICA, Dar-es-Salaam, 1 ♂, Magila, 2 ♀, Usagara Distr. (*Neave*), 2 ♀; BR. C. AFRICA, L. Nyasa, Florence Bay (*Neave*), 1 ♂, 1 ♀, Fort Maguire (*Neave*), 1 ♂, 4 ♀, Fort Johnstone (*Neave*), 1 ♀, Karonga Distr. (*Neave*), 1 ♀, Fort Songwe (*Johnston*), 1 ♀, Blantyre (*Ambruster*), 1 ♂, Lr. Shire Valley (*Neave*), 1 ♀; MOZAMBIQUE, Beira (*Marshall*), 1 ♀,

Delagoa Bay (*Kenrick, Distant*), 2 ♂, 2 ♀; MASHONALAND, Salisbury (*Marshall*), 1 ♂; TRANSVAAL, Lydenburg, 1 ♂; ZULULAND (*Angas*), 1 ♂; NATAL, Durban (*Gueinzius, Trimen, Burrows, Leigh, Meade-Waldo*), 4 ♂, 7 ♀. *Exp.* 50-66 millim.

Larva. Fawcett, Trans. Zool. Soc. xvii. p. 182, pl. viii. ff. 13, 14.

Pale yellow with broad black intersomital bands each with two fine white rings, the anal extremity black with two white bands; subbasal, lateral and spiracular pairs of small black tubercles on each somite, each with a few black hairs; legs, claspers, and spiracles black; head black marbled with white fasciæ. Food-plant, *Sapindus oblongifolius*.

Pupa. Pale rufous marbled with fine white lines defining the eyes, antennæ, veins on wing-covers and the abdominal somites; spiracles black: enclosed in a slight silky white web on the stem of the food-plant.

7388. *Egybolis dohertyi*.

Egybolis dohertyi, Roths. Nov. Zool. viii. p. 405, pl. x. f. 10 (1901).

Head deep orange, the back of head, thorax and abdomen black shot with brilliant metallic blue; fore tibiæ orange, the mid and hind tibiæ orange at extremities. Fore wing brilliant metallic blue-green; an orange subbasal spot on costa and narrow band from cell to inner margin with sinuous edges, both defined by black; a small elliptical orange discoidal spot with spot above it on costa, both defined by black; a strong black postmedial line, arising below costa, oblique and slightly sinuous to below vein 4, then strongly incurved, an orange bar on it between veins 8 and 6 and slight striga below vein 6. Hind wing brilliant metallic blue. Under-side of both wings brilliant metallic blue.

Hab. BR. E. AFRICA, Kikuyu Escarpment (*Neave*), 5 ♂, 3 ♀, Aberdare Mts. (*Neave*), 1 ♂, 1 ♀, Mt. Kenya, N. Slopes (*Neave*), 2 ♀. *Exp.* 58-60 millim.

Genus *HÆMABASIS*, nov

Type, *H. calodesma*.

Proboscis fully developed; palpi upturned, the 2nd joint reaching to vertex of head and broadly scaled, the 3rd long; frons smooth; eyes large, round; antennæ of male with fasciculate cilia; thorax clothed with hair only and without crests; tibiæ broadly fringed with hair, the mid tibiæ of male dilated with a groove containing a tuft of long hair, the fore and hind tibiæ not spined; male with a tuft of long hair from below origin of fore wing; abdomen with ridges of hair on all except the terminal segments and on the ventral surface. Fore wing with the apex rounded, the termen evenly curved and not crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the cell half the length of wing; veins 3, 4 from angle; 5 fully developed from just above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

7389. *Hæmabasis calodesma*.

Buzara calodesma, Roths. Nov. Zool. xii. p. 474 (1905) & xiii. pl. iii. f. 4.

♂. Head, thorax, and abdomen black-brown glossed with metallic blue, the tuft of hair from below base of fore wing whitish. Fore wing black-brown; the basal half of costal area and middle of cell brilliant scarlet, an obliquely curved yellow

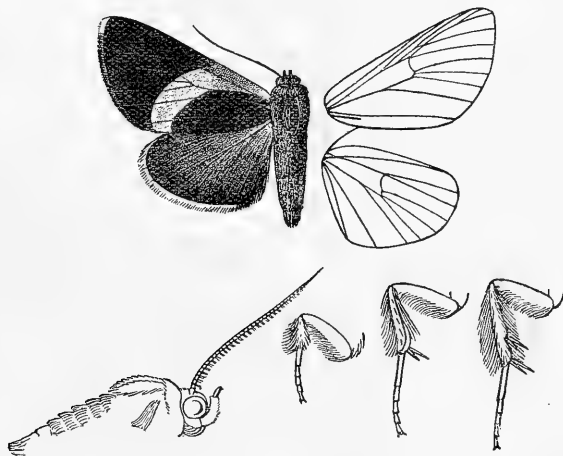


Fig. 38.—*Hæmabasis calodesma*, ♂. †.

band from the extremity of the scarlet area to inner margin towards tornus, towards which it narrows somewhat; cilia yellow at apex. Hind wing very deep chocolate-brown, the cilia orange-yellow except at tornus; the underside with the yellow extending on costa to middle.

Hab. BR. N. GUINEA, Owgarra (*Meek*), 2 ♂. *Exp.* 58–68 millim.

Genus **AGONISTA**.

<i>Lygniodes</i> , Guen. Noct. iii. p. 123 (1852), nec Schoenh. Col. 1836.	Type.
<i>Agonista</i> , Feld. Reis. Nov. expl. pl. 113 (1874)	<i>endoleuca</i> .
	<i>endoleuca</i> .

Proboscis fully developed; palpi upturned, the 2nd joint reaching to vertex of head and broadly scaled, the 3rd very long, slender; frons smooth, with tuft of hair above; eyes large, round; antennæ of male almost simple; thorax clothed entirely with hair and without crests; fore and hind tibiæ of male fringed with rather long hair; all the tibiæ spined; abdomen dorsally clothed with rough hair towards base but without crests. Fore wing broad, the costa highly arched towards apex which is somewhat produced and acute, the termen evenly curved and not crenulate; the cell about one-third length of wing; vein 3 from before angle of cell; 5 from just above angle; 6 from upper angle; 9 from 10 anastomosing with 8 to form a long narrow areole; 11 from cell;

the upperside in male clothed with silky androconia except on terminal area. Hind wing with the inner margin very long in male, the inner area with a strong fold between veins 1 *a* and *b*, the whole wing clothed with silky androconia except the inner area; the cell about one-fifth length of wing; veins 3, 4 from angle; 5 fully developed from above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

- A. Hind wing of male with the inner area yellow.
 - a.* Hind wing of male with the whole tornal area fulvous yellow *ochrifera*.
 - b.* Hind wing of male with the tornal area not yellow..... *plateni*.
- B. Hind wing of male with the inner area pure white..... *endoleuca*.
- C. Hind wing of male with the inner area not white.
 - a.* Fore wing on underside mostly white..... *hypoleuca*.
 - b.* Fore wing on underside not white.
 - a*¹. Hind wing of male on underside mostly white *reducens*.
 - b*¹. Hind wing of male on underside not white *ciliata*.

7390. *Agonista ochrifera*.

Agonista ochrifera, Feld. Reis. Nov. pl. 113. ff. 5, 6 (1874).

♂. Head and thorax very deep chocolate-brown; palpi yellow on inner side; pectus yellow; legs grey-brown, the fringes of hair yellow; abdomen yellow, the basal segments dorsally deep chocolate-brown, then with dorsal brown suffusion narrowing towards extremity. Fore wing very deep chocolate-brown, the cilia pure white except at apex. Hind wing with the basal area deep chocolate-brown, then silky red-brown from costa to vein 4 with the termen glossed with metallic blue, the rest of wing fulvous orange extending on inner margin to base. Underside of fore wing violaceous brown with an incurved postmedial series of white spots between veins 9 and 6, the spot above vein 6 larger, some slight whitish suffusion on termen from above vein 3 to submedian fold; hind wing reddish brown suffused with yellowish grey scales to beyond middle, the inner area yellow.

♀. Head, thorax, and abdomen grey-brown; fore wing grey-brown with a slightly sinuous ochreous white postmedial band defined on each side broadly by dark brown, the terminal area dark brown with sinuous inner edge; hind wing black-brown with a large postmedial yellow patch between veins 5 and 1 extending between veins 4 and 2 almost to termen with elongate brownish marks on it in the interspaces, cilia yellow; underside of fore wing with subterminal series of eight white spots.

Hab. CELEBES (*Doherty*), 1 ♂. *Exp.* ♂ 82, ♀ 86 millim.

7391. *Agonista plateni*. (Plate CCIV. fig. 1.)

Lygniodes plateni, Pag. Iris, iii. p. 18 (1890).

♂. Head and thorax velvety black-brown; pectus and legs reddish brown, the pectus behind, hind femora and tibiæ below yellowish; abdomen yellow, the basal half of dorsum velvety black-brown narrowing to a point at extremity. Fore wing velvety

black-brown, the terminal area slightly glossed with blue, the cilia golden yellow except at apex and towards tornus. Hind wing velvety black-brown, the terminal area glossed with blue, the inner margin and cilia towards tornus golden yellow. Underside of fore wing reddish brown; hind wing with the whole inner area yellow to between veins 3 and 2 where the brown is rather diffused and emits an obscure postmedial tooth, a slight subterminal brown spot between veins 3 and 2.

Hab. BORNEO (*Hay*), 3 ♂, Sandakan (*Pryer*), 1 ♂; PHILIPPINES, Palawan. *Exp.* 94-98 millim.

7392. *Agonista endoleuca*. (Plate CCIV. fig. 2 ♂, 3 ♀.)

Erebus endoleuca, Guér. Icon. R. Anim., Ins. p. 521 (1844); Hmps. Moths Ind. ii. p. 464.

♂. Head and thorax velvety black-brown; pectus, femora, and hind tibiae yellow, the rest of legs reddish brown; abdomen yellow,

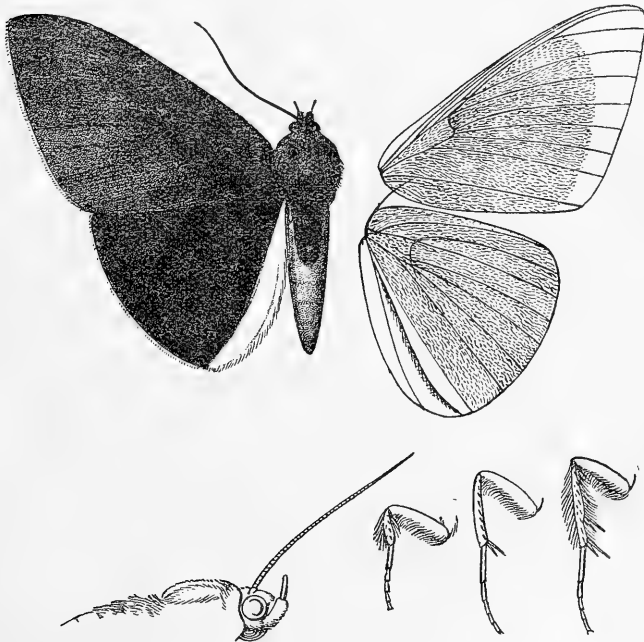


Fig. 39.—*Agonista endoleuca*, ♂. 1.

the basal half of dorsum velvety black-brown. Fore wing velvety black-brown, the terminal area glossed with blue, the cilia pure

white except towards tornus. Hind wing velvety black-brown, the terminal area glossed with blue, the inner area, and cilia on tornal half silvery white. Underside greyish brown; hind wing with the inner area white to vein 2 below which there is some brown irroration and striation, the white extending at termen to vein 4, some slight white points before termen on the brown area and brown lunules above and below vein 2.

♀. Pale reddish brown; fore wing with indistinct brown antemedial line, a discoidal lunule faintly defined by blackish and white scales, an oblique dark medial line with white points before it above and below vein 4, a diffused dark postmedial line angled outwards below vein 7, and subterminal series of minute blackish spots with white points on their inner side, angled inwards between veins 3 and 2; hind wing with faint oblique dark medial line, postmedial line defined on outer side by whitish and slightly excurved below costa, and subterminal series of minute dark spots, the inner margin whitish; underside whitish tinged and irrorated with brown, both wings with dark postmedial band defined on outer side by white and excurved below costa.

Hab. CHINA (*Cantor*), 1 ♂; ASSAM, Silhet; BURMA, Moulmein (*Clerk*), 1 ♂, Tenasserim Thoungyen Valley (*Bingham*), 1 ♂, Dawnat Hills (*de Nicéville*), 2 ♀; MALAY PENINSULA; SINGAPORE (*Ridley*), 2 ♂; SUMATRA (*de Nicéville*), 1 ♂, 1 ♀; JAVA (*Horsfield*), 4 ♂. *Exp.* 88–98 millim.

7393. *Agonista hypoleuca*. (Plate CCIV. fig. 4 ♂, 5 ♀.)

Lygniodes hypoleuca, Guen. Noct. iii. p. 125, pl. 16. f. 5 (1852); Hmps. Moths Ind. ii. p. 463.

♂. Head, thorax, and abdomen velvety black-brown; pectus and ventral surface of abdomen pale yellow; mid and hind legs grey-brown. Fore wing velvety black-brown, the cilia pure white except towards tornus. Hind wing velvety black-brown, the terminal area slightly glossed with blue; the inner margin fringed with white hair; the cilia pure white except towards apex and the termen irrorated with white towards tornus. Underside white; fore wing irrorated and striated with red-brown except on inner area, the cell, costa, and terminal area to vein 3 suffused with red-brown, a minute blackish discoidal spot defined by whitish, traces of a brown postmedial line defined on outer side by white and excurved below costa, a series of white points before termen on the brown area; hind wing with the costal area striated with brown and a few striæ on medial area, a series of slight brown spots before termen.

♀. Grey-brown with a faint reddish tinge; pectus and ventral surface of abdomen whitish; fore wing with some dark striæ, a faint dark sinuous antemedial line, reniform faintly defined at sides by black and white, an oblique dark postmedial line with white and black points before it above and below vein 4, a pale shade on

postmedial area defined on outer side by a curved dark shade towards costa, a subterminal series of minute blackish and white spots oblique to below vein 3 where it is angled inwards; hind wing with faint dark striæ on terminal area, an indistinct oblique dark medial line, postmedial line dark defined on outer side by whitish, excurved below costa, a series of minute dark subterminal spots defined on inner side by whitish; underside white suffused and striated with red-brown except on inner area of hind wing, both wings with faint dark shade beyond the cell except on inner area, both wings with the postmedial line entire except on inner area of hind wing.

Ab. 1. ♂. Fore wing with diffused greyish postmedial shade.

Hab. SIKHIM, 1 ♂, 3 ♀; BHUTÁN; ASSAM, Silhet (*Stainsforth*), 2 ♂, 3 ♀, Khásis (*Buckley*), 1 ♂, Dibrugrah (*Ward*), 1 ♂, 2 ♀; ANDAMANS, 1 ♂. Exp. 90–104 millim.

7394. *Agonista reducens*.

Lygniodes reducens, Wlk. xiii. 1236 (1857); Moore, Lep. Ceyl. iii. p. 140, pl. 163. ff. 3, 3 a; Hmps. Moths Ind. ii. p. 464.

Lygniodes disparans, Wlk. xv. 1817 (1858).

Lygniodes reducens, var. *E-antiqua*, Hmps. Ill. Het. B.M. viii. p. 89 (1891).

♂. Head, thorax, and abdomen dark greyish brown; pectus, hind legs, and ventral surface of abdomen tinged with whitish. Fore wing dark brown tinged and slightly irrorated with grey, the terminal half of inner area shot with blue; a faint slightly sinuous dark antemedial line; a faint discoidal lunule defined by whitish and black scales; an oblique dark medial line; a faint diffused dark subterminal line with some greyish before it towards costa, excurved below costa; a series of slight dark spots defined on inner side by whitish before termen; cilia white except towards apex and tornus. Hind wing dark brown with a cupreous gloss on postmedial costal area and blue gloss on apical half of terminal area, the inner area irrorated with grey and with faint dark striæ; traces of a curved dark antemedial line; cilia white except towards apex. Underside of fore wing grey-brown with faint dark postmedial and subterminal lines on costal half, the latter defined on outer side by whitish, the terminal area irrorated with grey; hind wing grey-white irrorated and striated with brown, indistinct brown antemedial and postmedial lines, and a series of slight dark lunules before termen.

♀. Pale reddish brown, the wings faintly striated with brown; fore wing with the postmedial line more distinct; hind wing with dark medial line defined on outer side by whitish, and series of slight dark spots before termen; the underside whitish tinged and striated with brown, both wings with brown postmedial line defined on outer side by whitish.

Ab. 1. ♂. Wings without grey striation, the lines hardly traceable; underside of hind wing with the costal half browner.

Ab. 2. *E-antiqua*, ♀. Fore wing with the discoidal lunule in the form of an old English capital E, its extremities defined by white, its lower extremity much produced and with two white points.

Hab. BOMBAY, Deccan, 1 ♀; MADRAS, Malabar, 1 ♂, Nilgiris (*Hampson*), 2 ♂, 3 ♀ type *E-antiqua*; TRAVANCORE, Trevandrum (*Ferguson*), 1 ♂; CEYLON (*Layard*), 1 ♂ type, Colombo (*Nietner*), 1 ♀ type *disparans*, Kandy, (*Meade-Waldo*), 1 ♂, 1 ♀, Kanthalai (*Yerbury*), 1 ♀. *Exp.* 74–90 millim.

7395. *Agonista ciliata*. (Plate CCIV. fig. 6 ♂, 7 ♀.)

Lygniodes ciliata, Moore, P. Z. S. 1867, p. 69; Hmps. Moths Ind. ii. p. 464.

Agonista fuscescens, Leech, Trans. Ent. Soc. 1900, p. 549.

♂. Head, thorax, and abdomen fuscous brown; pectus, legs, and ventral surface of abdomen reddish brown. Fore wing fuscous brown; traces of a dark antemedial line, excurved below costa and incurved at median nervure; a white discoidal point and slight striga beyond upper angle of cell; an indistinct diffused dark medial line, incurved below vein 3; cilia yellowish white. Hind wing fuscous brown with faint oblique dark antemedial line; cilia yellowish white. Underside greyish brown; fore wing with indistinct rather maculate dark subterminal line defined on outer side by faint whitish marks, excurved and with more prominent white spot below vein 7, a series of slight dark marks defined on inner side by whitish lunules before termen; hind wing with slight discoidal lunule defined at sides by blackish, indistinct curved medial line, maculate dark postmedial line defined on outer side by white, and series of slight dark marks before termen defined on inner side by whitish lunules, the termen greyer.

♀. Pale reddish brown tinged with grey-brown; fore wing with the lines more distinct, a pale discoidal lunulate patch extending to below the cell, the medial line waved, a diffused dark postmedial line excurved below costa, at middle, and at vein 1; a series of slight dark marks defined on inner side by whitish before termen; hind wing with diffused dark postmedial line defined on outer side by ochreous, a series of faint dark and whitish marks before termen; the underside ochreous brown with a greyish tinge and dark striation, the markings of fore wing more distinct than in male.

Hab. W. CHINA, Chia-kou-ho (*Pratt*), 1 ♂, 2 ♀ type *fuscescens*; SIKHIM (*Lidderdale*), 1 ♀; ASSAM, Khásis, 1 ♀; PERAK, Larut Hills (*Flower*), 1 ♀. *Exp.* 78–92 millim.

Genus NYCTIPAO.

	Type.
<i>Nyctipao</i> , Hübn. Verz. p. 271 (1827).....	<i>crepuscularis</i> .
<i>Argiva</i> , Hübn. Verz. p. 272 (1827)	<i>hieroglyphica</i> .
<i>Patula</i> , Guen. Noct. iii. p. 176 (1852), nec Held., Moll. 1837	<i>macrops</i> .
<i>Bocana</i> , Wlk. xxxi. 57 (1864), nec Wlk. 1858	<i>lunaris</i> .
<i>Coria</i> , Wlk. xxxv. 1982 (1866)	<i>lunaris</i> .
<i>Eupatula</i> , Rag. Bull. Soc. Ent. Fr. 1894, p. cevii	<i>macrops</i> .
<i>Crishna</i> , Kirby, Allen's Nat. Libr. v. p. 153 (1897).....	<i>macrops</i> .

Proboscis fully developed; palpi upturned, the 2nd joint reaching to just above vertex of head and moderately scaled, the 3rd long; frons smooth; eyes large, round; antennæ of male minutely ciliated; thorax clothed with hair only and without crests; pectus clothed with long woolly hair; all the tibiæ spined and moderately fringed with hair; abdomen with dorsal ridge of hair at base but without crests. Fore wing with the apex somewhat acute, the termen evenly curved and highly crenulate; the cell about one-third length of wing; veins 3 and 5 from near angle; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the cell about one-fifth length of wing; veins 3, 4, 5 from angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

SECT. I. Hind wing of male with vein 3 running to the functional apex, the costal half of wing reduced to a small lobe at base containing a small glandular patch of scales, veins 4 to 8 running to the lobe.

A. (*Argiva*.) Hind wing of male with the costal lobe, the glandular patch, and veins 4 to 8 very much reduced.

a. Fore wing of male with the lower angle of cell obliquely truncate, the basal part of veins 2 to 5 dilated, vein 3 widely separated from 4, 5.

7396. *Nyctipao purpurata*.

Argiva purpurata, Druce, P. Z. S. 1888, p. 575.

Nyctipao arva, Beth.-Baker, Nov. Zool. xv. p. 200 (1908).

♂. Head, thorax, and abdomen black-brown. Fore wing black-brown; traces of a black medial line, arising below costa, excurred beyond the cell, angled inwards at vein 2, then waved. Hind wing uniform black-brown. Underside of both wings fuscous brown, the terminal area somewhat paler with numerous faint dark striæ; fore wing with indistinct curved dark postmedial line; hind wing with indistinct oblique dark postmedial line.

♀. Head, thorax, and abdomen fuscous brown mixed with some grey; fore wing greyish brown, the terminal area with numerous indistinct dark striæ, an indistinct sinuous dark antemedial line, an inverted comma-shaped discoidal mark with bilobate head, defined by black and silvery white scales, the postmedial line black, distinct, with a faint fuscous shade beyond it, an oblique postmedial series of three white spots from below costa to vein 6, slight whitish marks above and below vein 5, a spot below vein 4 and slight whitish marks between it and inner margin, a series of obscure blackish spots before these white markings; hind wing fuscous brown to postmedial line, the terminal area grey-brown with

numerous dark striae, an indistinct whitish somewhat dentate post-medial line, angled outwards below vein 4, a subterminal series of faint whitish spots; underside of both wings fuscous brown, fore wing with the postmedial spots pure white, hind wing with series of whitish points beyond the indistinct postmedial line.

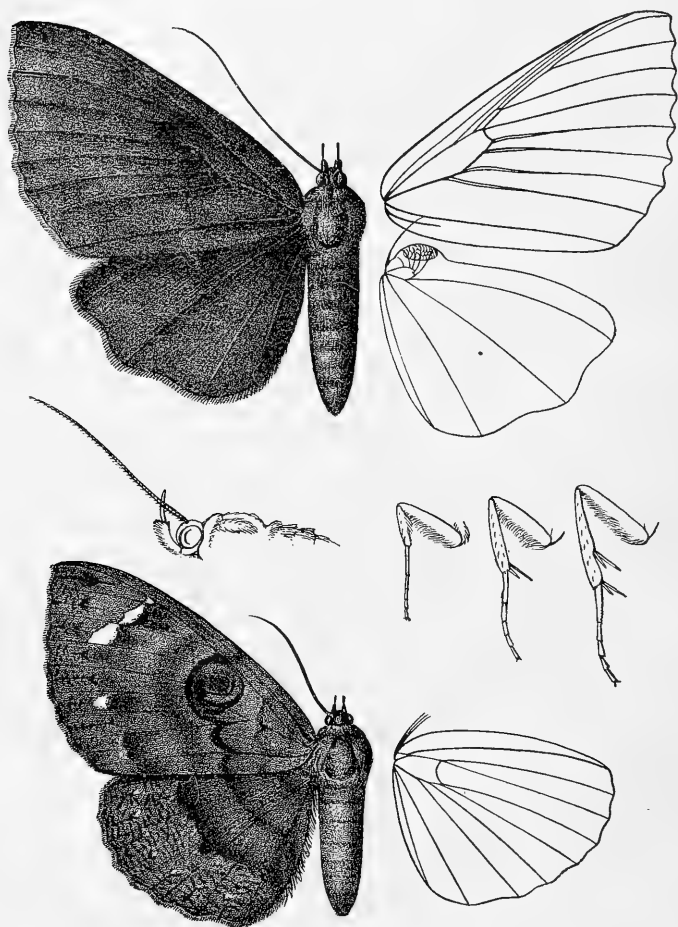


Fig. 40.—*Nyctipao purpurata*, ♂, ♀. $\frac{1}{2}$.

Hab. BORNEO in Coll. Druce; BR. N. GUINEA, Aroa (*Pratt*), type † ♂ aroa in Coll. Bethune-Baker; SOLOMONS, Guadalcanar (*Meek*), 1 ♂, 1 ♀. *Exp.* ♂ 100, ♀ 90 millim. Type † in Coll. Druce.

- b. Fore wing of male with the neuration normal.
 a¹. Fore wing with the oblique postmedial bar yellow
 in male, white in female *hieroglyphica*.
 b¹. Fore wing with the oblique postmedial bar grey-
 brown in both sexes *strigipennis*.

7397. *Nyctipao hieroglyphica*.

- Noctua hieroglyphicus*, Drury, Ill. Exot. Ins. ii. p. 3, pl. ii. f. 1 (1773);
 Donovan, Ins. Ind. pl. 54. f. 2; Moore, Lep. Ceyl. iii. p. 146, pl. 165.
 ff. 2, 2 a; Hmps. Moths Ind. ii. p. 459.
Noctua hermonia, Cram. Pap. Exot. ii. p. 119, pl. 174. f. E (1779).
Noctua mygdonia, Cram. Pap. Exot. ii. p. 119, pl. 174. f. F (1779).
Noctua ulula, Fabr. Spec. Ins. ii. p. 211 (1781).
Bocana lunaris, Wlk. xxxi. 57 (1864).
Argiva celebensis, Hpfr. Stett. Ent. Zeit. xxxv. p. 46 (1874).

♂. Head, thorax, and abdomen black-brown. Fore wing black-brown with numerous dark striæ, very indistinct except on terminal area which is slightly paler; an inverted comma-shaped brown discoidal mark with bilobate head defined by black and silvery-blue scales; the medial black line arising from below costa just beyond the discoidal mark, excurved beyond it and angled inwards below it, then oblique to inner margin before middle; an oblique yellowish white or brownish yellow postmedial bar from below costa to vein 6, sometimes divided into two spots; an indistinct oblique waved dark subterminal line defining the inner edge of the paler terminal area. Hind wing black-brown with numerous very indistinct dark striæ. Underside of both wings dark brown; fore wing with yellowish white postmedial spot below vein 4 and traces of a spot below 2.

♀. Head, thorax, and abdomen grey-brown; fore wing grey-brown with the dark striæ distinct, the postmedial oblique bar white, a postmedial white spot below vein 4, and a mark in submedian interspace, these white markings with some diffused fuscous before them; hind wing grey-brown with the dark striæ distinct, a slight curved dark antemedial line, an indistinct diffused whitish postmedial line, angled outwards below veins 7 and 4 and with a dark shade before it, an indistinct dark subterminal line, incurved at discal fold and excurved at middle; underside of both wings grey-brown, fore wing with the postmedial spots white and with minute spots further from termen above and below vein 5 and below 3, hind wing with white postmedial spots below veins 7 and 4.

Ab. 1. *lunaris*. Fore wing with the postmedial bar more evenly oblique and extending on vein 6 to near termen.—Samboangan, Ternate, Celebes.

Hab. PUNJAB, 1 ♀, Wuzeerabad (*Hearsey*), 1 ♂, Jubbulpore (*F. Butler*), 1 ♂; SIKHIM, 1 ♂, 1 ♀; ASSAM (*Badgley*), 1 ♀, Silhet (*Stainsforth*), 1 ♂, 1 ♀, Cachar (*Grant*), 1 ♂; GANJAM, 1 ♀; BOMBAY, 1 ♂, 1 ♀; MADRAS, Kadur Distr., Barecody (*Trevor-Roper*), 1 ♀, Calicut (*Fellows-Wilson*), 1 ♀, Nilgiris (*Hampson*), 2 ♂, 2 ♀, Shevaroy, 1 ♂; CEYLON, 1 ♀; BURMA, Moulmein

(*Clerk*), 1 ♂, 1 ♀, Pegu Yoma (*Bingham*), 1 ♂; NICOBARS (*Rogers*), 1 ♂, 1 ♀; STRAITS SETTLEMENTS, Malacca (*Pinwill*), 1 ♂, Singapore (*Ridley*), 3 ♂; SUMATRA (*de Nicéville*), 1 ♀; PHILIPPINES, Manila (*Ledyard*), 1 ♂, 1 ♀, Taytai (*Betton*), 1 ♂, 1 ♀, Mindanao, Samboangan (*J. J. Walker*), 1 ♂; JAVA, 2 ♀; MOLUCCAS, Celebes, Makian, type † ♀ *lunaris* in Mus. Oxon.; Ternate (*J. J. Walker*), 1 ♂. *Exp.* 76–94 millim.

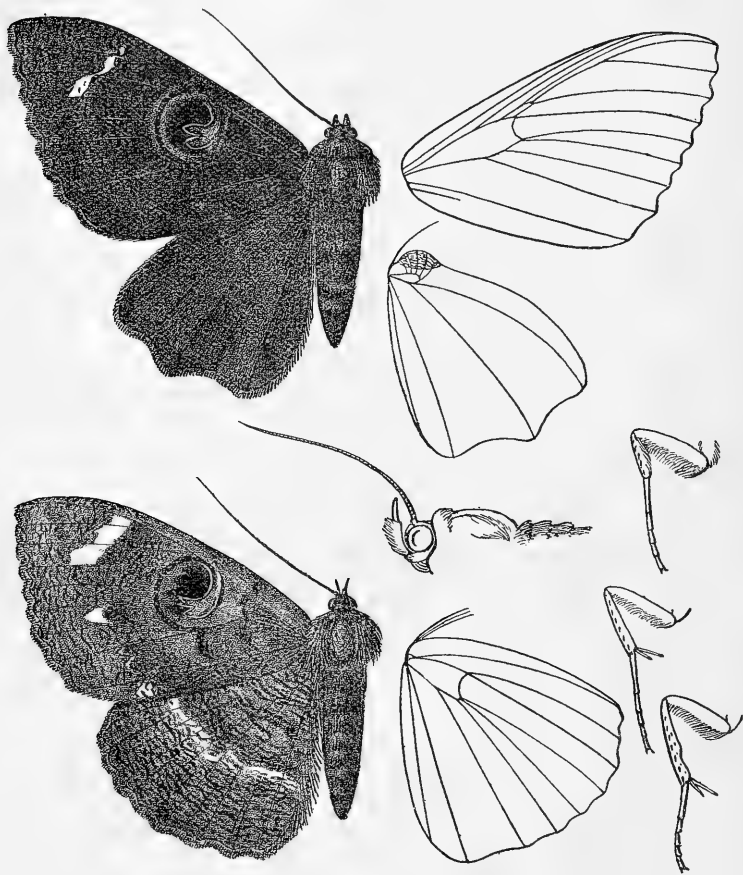


Fig. 41.—*Nyctipao hieroglyphica*, ♂, ♀. $\frac{1}{2}$.

7398. *Nyctipao strigipennis*. (Plate CCV. figs. 1 ♂, 2 ♀.)

Argiva strigipennis, Moore, P. Z. S. 1883, p. 25; Hmps. Moths Ind. ii. p. 460.

♂. Head, thorax, and abdomen black-brown. Fore wing black-brown with numerous indistinct dark striae, the terminal area

greyer brown; an inverted comma-shaped ochreous discoidal mark with bilobate head, defined by black and a few silvery blue scales; the medial black line arising from below costa just beyond the discoidal mark, excurved and slightly waved beyond it and angled inwards below it on vein 2, then oblique and waved to inner margin before middle; an oblique postmedial ochreous brown band from costa to vein 6; an oblique waved subterminal dark line defining the inner edge of the paler terminal area. Hind wing black-brown to beyond middle, the terminal area greyer brown, with numerous indistinct dark striæ. Underside of both wings fuscous brown; fore wing with an oblique postmedial ochreous white band from below costa to vein 6 formed by two bars and ochreous white spots below veins 4 and 2.

Ab. 1. Both wings with the terminal area much greyer; fore wing with greyish line from the oblique bar, angled inwards in discal fold and outwards below veins 4 and 2; hind wing with diffused postmedial and terminal black-brown band.

♀. Head, thorax, and abdomen grey-brown; fore wing grey-brown with the dark striæ distinct, the oblique bar and pale line arising from it defined on inner side by fuscous suffusion; hind wing grey-brown with the dark striæ distinct, faint diffused antemedial and medial dark lines, and a sinuous subterminal maculate line.

Hab. PUNJAB, Jubbulpore (*F. Butler*), 1 ♀; ASSAM, Khâsis, 2 ♀ type; BOMBAY, Kanara, 1 ♂; MADRAS, Nilgiris (*Hampson*), 2 ♂, 3 ♀. *Exp.* 76–88 millim.

B. Hind wing of male with the costal lobe, the glandular patch, and veins 4 to 8 moderately developed.

a. Fore wing of female with the postmedial line excurved between veins 4 and 3.

a¹. Fore wing with the medial line not waved below costa..... *caprimulgus*.

b¹. Fore wing with the medial line waved below costa . *orion*.

b. Fore wing of female with the postmedial line straight from vein 5 to 2 *sumatrensis*.

7399. *Nyctipao caprimulgus*.

Noctua caprimulgus, Fabr. Spec. Ins. ii. p. 210 (1781); Hmps. Moths Ind. ii. p. 460.

Nyctipao exterior, Wlk. xiv. 1306 (1858); Butl. Ill. Het. B.M. vi. p. 45, pl. 112. f. 3.

Nyctipao obliterans, Wlk. xiv. 1307 (1858).

Nyctipao truncata, Moore, P. Z. S. 1877, p. 608.

♂. Head, thorax, and abdomen black-brown, the last with the genital tufts fulvous yellow. Fore wing black-brown; an inverted comma-shaped discoidal mark with bilobate head, defined by black and silvery blue and on inner side by ochreous white, a black patch beyond it, the black medial line arising just beyond it below the costa, excurved round it, angled inwards below it on vein 2, then sinuous to inner margin; traces of a lunulate pale and blackish subterminal line. Hind wing black-brown, an indistinct oblique

black antemedial line angled inwards at vein 2. Underside of both wings fuscous brown; fore wing with postmedial series of eight white spots in the interspaces, the spot below vein 7 larger and displaced outwards, the spot below vein 4 slightly displaced outwards.

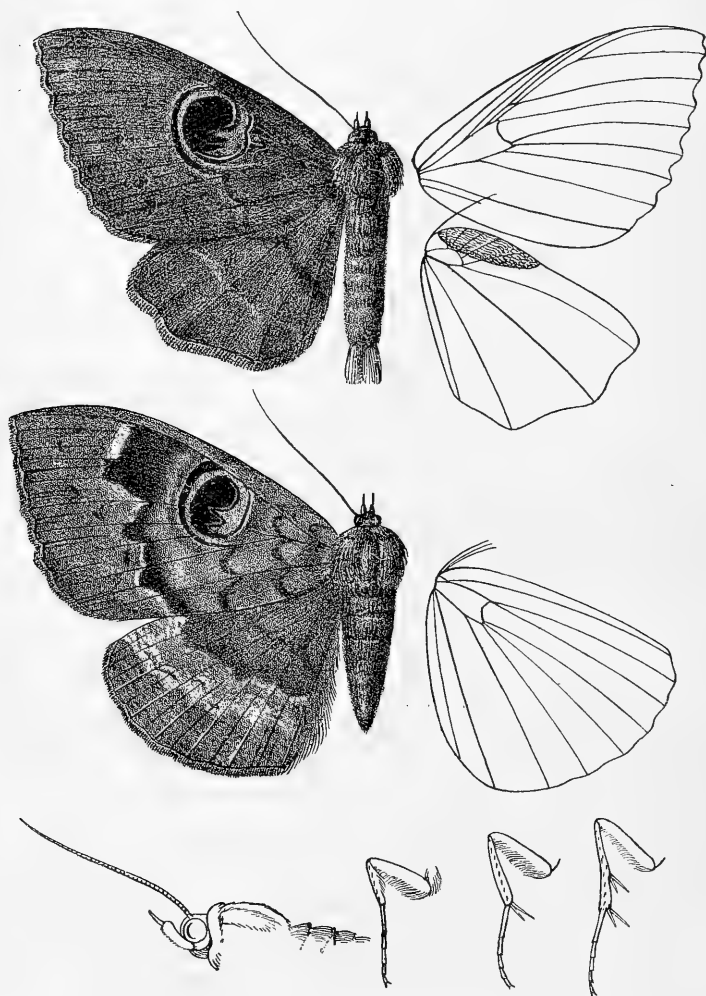


Fig. 42.—*Nyctipao caprimulgus*, ♂, ♀. 1.

♀. Wings fuscous brown, the basal area with a faint purplish grey tinge; fore wing with sinuous blackish antemedial line, and indistinct postmedial line angled outwards below veins 7 and 4 and

with black shade before it forming a large quadrate patch below costa; hind wing with the antemedial line minutely wavy, a blackish postmedial shade and indistinct sinuous subterminal line defined by greyish, the area beyond it with faint dark striae; the underside with postmedial series of small white spots in the interspaces, angled outwards below vein 7, and subterminal series of slight white and blackish lunules.

Ab. 1. *exterior*. Both wings with the postmedial line white and prominent with slight grey irroration beyond it.

Ab. 2. Both wings with the area beyond the postmedial line strongly suffused with grey and with prominent dark striae, hind wing with the white line diffused on outer side into a broad white band with dark striae on it.

Hab. PUNJAB, Masuri (*Hutton*), 2 ♀, Dharmśāla (*Hocking*), 1 ♂, 4 ♀; SIKHIM, 7 ♀; BHUTÁN; ASSAM, Khásis (*Watson*), 1 ♂, Silhet, 2 ♂, 3 ♀, type *exterior*, Cachar (*Grant*), 1 ♂, 2 ♀, Dibrugrah (*Ward*), 1 ♂, 3 ♀; BOMBAY, Khandalla; MADRAS, Nilgiris (*Hampson*), 2 ♂, 3 ♀, Shevaroy, 1 ♀; BURMA, Moulmein (*Clerk*), 1 ♀, Hsipaw (*Watson*), 1 ♂, Tounghoo, 1 ♀, Tenasserim, Thoungeen Valley (*Bingham*), 1 ♀; ANDAMANS, 1 ♂ type *truncata*. *Exp.* 86–104 millim.

7400. *Nyctipao orion*, n. sp. (Plate CCIV. fig. 8.)

♀. Head, thorax, and abdomen fuscous brown. Fore wing fuscous brown, the basal area with a faint purplish grey gloss, the terminal area grey-brown with numerous faint dark striae; an indistinct wavy dark antemedial line; a grey-brown inverted comma-shaped discoidal mark with bilobate head, defined by black and grey-brown and with some silvery blue at its extremity, the black medial line arising below the costa just beyond it, slightly wavy to vein 6, excurved and minutely wavy beyond lower extremity of the discoidal mark and angled inwards below it on vein 2, then wavy to inner margin; a pale postmedial line defined on inner side by a black-brown shade, angled outwards just above vein 6 and excurved below veins 4 and 2; a black-brown patch on costal area towards apex; a subterminal series of white and black-brown lunulate marks, incurved below vein 6 and excurved below veins 4 and 2. Hind wing fuscous brown, the terminal half grey-brown with numerous faint dark striae; a minutely wavy blackish antemedial line; a pale medial line with black-brown shade before it, excurved below costa; a pale lunulate subterminal line defined on outer side by blackish, excurved below costa and angled outwards at vein 2. Underside of both wings fuscous brown; fore wing with postmedial series of eight white spots, the spot below vein 7 larger and displaced outwards, the spot below vein 4 slightly displaced outwards, a subterminal series of slight white and blackish lunules; hind wing with postmedial series of small white spots in the interspaces and subterminal series of slight white and blackish lunules.

Ab. 1. Fore wing with the terminal half pale brown leaving dark patches before the postmedial line from costa to vein 4 and vein 2 to inner margin and a dark patch on costa towards apex; hind wing with the area beyond the postmedial line pale brown.—Ceram.

Hab. BORNEO, Trusan (*Shelford*), 1 ♀ type; CERAM in Coll. Druce. *Exp.* 106 millim.

7401. *Nyctipao sumatrensis*, n. sp. (Plate CCV. fig. 3.)

♀. Head, thorax, and abdomen fuscous brown. Fore wing fuscous brown, the basal area tinged with purplish grey, the terminal area somewhat paler and with numerous faint dark striæ; a sinuous blackish antemedial line; an inverted comma-shaped discoidal mark with bilobate head, defined by black and ochreous grey and its extremity by silvery blue, the black medial line arising below costa just beyond it, slightly incurved at vein 6, then excurved round lower extremity of the discoidal mark and angled inwards below it on vein 2, then sinuous to inner margin; postmedial line indistinct, pale defined on inner side by a black-brown shade, strongly angled outwards above vein 2, then incurved, and again excurved below vein 2; a blackish patch on costal area towards apex; a subterminal series of small black and white lunules, incurved below vein 6 and excurved at submedian fold. Hind wing fuscous brown, the terminal half greyish brown with numerous faint dark striæ; a curved minutely waved dark antemedial line; a blackish medial shade bounding the dark area and excurved below costa; a subterminal series of slight pale and blackish lunules, incurved below vein 6. Underside of both wings fuscous brown; fore wing with postmedial series of eight white spots in the interspaces, the spot below vein 7 larger and displaced outwards, a subterminal series of slight white and black lunules; hind wing with postmedial series of small whitish spots in the interspaces and subterminal series of slight white and blackish lunules.

Ab. 1. Fore wing with patch of white suffusion between the postmedial and subterminal lines from costa to vein 6, then grey irroration to inner margin; hind wing with the postmedial area suffused with white.—In Coll. Druce.

Hab. SUMATRA (*de Niceville*), 1 ♀ type. *Exp.* 100 millim.

SECT. II. (*Patula*.) Hind wing of male with the costal half aborted and forming a fold turned over on upper surface containing a large glandular patch of flocculent hair, vein 4 running to the functional apex, 5 from middle of discocellulars, 6 to the fold, 7 and 8 very minute to near base of costa.

A. Fore wing of male with fine black subterminal line.

a. Fore wing of male with the subterminal line close to termen and evenly curved below vein 8..... *nyctaculis*.

b. Fore wing of male with the subterminal line further from termen and somewhat sinuous *aerosa*.

- B. Fore wing of male with the subterminal line broader, waved or maculate and further from termen.
- a. Hind wing with the postmedial band evenly curved ... *macfarlanei*.
 - b. Hind wing with the postmedial band excurved below vein 7 and at middle.
 - a¹. Wings without dark shade between the postmedial and subterminal lines *javanensis*.
 - b¹. Wings with dark shade between the postmedial and subterminal lines.
 - a³. Wings dark brown suffused with purple, the shade beyond the postmedial line more diffused *valceri*.
 - b³. Wings grey-brown hardly tinged with purple, the shade beyond the postmedial line more distinct and narrower *macrops*.

7402. *Nyctipao nyctaculis*. (Plate CCV. fig. 4.)

Nyctipao nyctaculis, Snell. Tijds. v. Ent. xxiii. p. 95, pl. 7. f. 1 (1880); Semp. Reis. Phil., Lep. ii. p. 544.

♂. Head, thorax, and abdomen brown slightly tinged with purple. Fore wing brown tinged with purple; antemedial line strong, blackish, obliquely incurved to submedian fold, then erect; an oblique black bar from middle of costa; a very large ocellus in, beyond, and below end of cell, defined by black, with inverted comma-shaped fulvous mark in inner part of centre and comma-shaped black mark in outer part of centre, a curved silvery blue streak on its lower edge, a silvery blue line defining the head of the black mark and minute streaks below veins 5 and 4 before its tail; medial line blackish, arising below costa, then curved round the outer edge of the ocellus, very strongly angled inwards on vein 2 below the ocellus, then again excurved; a narrow blackish post-medial band, oblique to vein 6, then slight and incurved to vein 4, then stronger and sinuous to inner margin where it is diffused inwards; a curved black subterminal line arising from a black bar from costa and excurved at vein 8. Hind wing brown tinged with purple; a rather diffused oblique medial blackish line, broad post-medial shade, and blackish subterminal line. Underside blackish brown; fore wing with series of white striæ before termen.

♀. Both wings with the terminal area paler; fore wing with the subterminal line much more excurved below vein 7, at middle and submedian fold, the outer line much further from termen, curved, waved, and angled inwards below vein 5; hind wing with the medial line sinuous, the postmedial shade excurved below vein 7 and at middle, the outer line further from termen and waved; underside of both wings with postmedial line with series of white spots on it excurved below veins 7 and 3, and a series of white striæ before termen.

Hab. PHILIPPINES, Manila (*Ledyard*), 1 ♂; CELEBES. *Exp.* 100 millim.

7403. *Nyctipao ærosa*. (Plate CCV. fig. 5.)Argiva ærosa*, Swinh. Cat. Het. Mus. Oxon. ii. p. 116 (1900).

♂. Head, thorax, and abdomen fuscous brown. Fore wing fuscous brown; an indistinct dark antemedial line, oblique and sinuous below submedian fold; an inverted comma-shaped discoidal mark with bilobate head and defined by black, a blackish patch beyond it with some silvery blue on it beyond both head and tail of the discoidal mark, the black medial line arising from the tail of the discoidal mark, excurved round it and angled inwards below it on vein 2, then sinuous to inner margin, followed by a fuscous shade; a diffused fuscous postmedial shade, slightly excurved below vein 7 and at middle; subterminal line formed by blackish striz, excurved below costa and middle and slightly incurved at vein 5. Hind wing fuscous brown with indistinct oblique dark medial line. Underside of both wings black-brown; fore wing with the terminal area rather paler with numerous indistinct dark striz and a subterminal series of white striz with white points at the veins.

Hab. GILLOLO (*Doherty*), type † ♂ in Mus. Oxon. *Exp.* 90 millim.

This is possibly the true male of *N. nyctaculis*, Snell. and the Philippine species new.

7404. *Nyctipao macfarlanei*. (Plate CCVI. fig. 1.)*Patula macfarlanei*, Butl. A. M. N. H. (4) xviii. p. 127 (1876).

♂. Head, thorax, and abdomen brown slightly tinged with grey; genital tufts of hair fulvous yellow. Fore wing brown suffused with purplish grey; a faint dark subbasal line from below costa to submedian fold; a slightly sinuous dark antemedial line; an oblique dark bar from middle of costa and oblique slightly sinuous line from vein 2 to inner margin; a very large fulvous-tinged ocellus in, beyond, and below end of cell with comma-shaped black mark in outer part of centre, with some silvery-blue irroration at its head, silvery-blue streaks below veins 5 and 4 before its tail and a striga at extremity of tail; postmedial line blackish, arising below costa, excurved round the ocellus and strongly angled inwards below it, then sinuous, another curved line beyond it expanding into an oblique bar-shaped patch from below costa to vein 6; a waved subterminal black line, slightly incurved at vein 5 and with slight fuscous shade before it. Hind wing brown suffused with purplish grey; a blackish medial line slightly excurved beyond lower angle of cell, and slightly sinuous blackish postmedial and subterminal lines, the last with faint fuscous shade before it. Underside grey-brown to beyond middle, the terminal area fuscous brown with a purplish gloss; fore wing with postmedial series of eight white spots, the spots below vein 7 and 4 displaced outwards, and sub-

terminal series of white striæ; hind wing with three postmedial white spots and three subterminal striæ.

Hab. AMBOINA (*Forbes*), 1 ♂; BR. N. GUINEA, AROA R.; QUEENSLAND, Cape York (*McFarlane*), 1 ♂ type. *Exp.* 142 millim.

7405. *Nyctipao javanensis*, n. sp. (Plate CCVI. fig. 2.)

♀. Head, thorax, and abdomen brown with a slight grey gloss. Fore wing brown strongly suffused with purple-grey; a faint curved blackish subbasal line from below costa to submedian fold; antemedial line black, sinuous; an oblique medial black bar from costa and sinuous line from cell to inner margin; a very large ocellus in, beyond, and below the end of cell, defined by black, its inner part with inverted comma-shaped fulvous mark, its outer with comma-shaped black mark with some silvery blue at its head, and silvery-blue streaks below veins 5 and 4 before its tail, its lower part defined by a curved silvery-blue streak; postmedial line black, arising below costa, excurved round the ocellus, strongly angled inwards below it, then sinuous, another line beyond it, expanding into a patch between veins 8 and 6 and patches below veins 4, 2 and 1; a subterminal series of black spots, excurved below costa, incurved below vein 5, then slightly sinuous. Hind wing brown strongly suffused with purple-grey except on basal area where the hair is reddish brown; a blackish medial line excurved beyond the cell; a rather diffused black postmedial line, angled outwards below veins 7 and 4; a sinuous subterminal maculate band. Underside grey-brown to middle, then purplish fuscous; fore wing with postmedial series of seven white spots, the spots above and below vein 5 and below vein 3 displaced inwards, and a subterminal series of eight white lunules; hind wing with postmedial series of seven white spots, the spots below veins 7 and 4 displaced outwards, and subterminal series of seven lunules.

Hab. JAVA, 1 ♀ type. *Exp.* 72 millim.

7406. *Nyctipao valceri*.

Patula walkeri, Butl. A. M. N. H. (4) xvi. p. 406 (1875); Saalm. Lep. Madag. p. 450, f. 137.

♂. Head, thorax, and abdomen dark reddish brown. Fore wing brown with a slight purplish grey gloss; a sinuous antemedial line, excurved at submedian fold; an oblique black bar from middle of costa and waved line from vein 2 to inner margin; a very large ocellus in, beyond, and below end of cell, defined by black, with inverted comma-shaped fulvous mark in inner part of centre and comma-shaped black mark in outer part of centre, a curved silvery-blue streak on its lower edge, some silvery-blue irroration on upper part of the black mark, and short silvery-blue streaks below veins 5 and 4 before the tail of the black mark; postmedial line arising from a rather diffused fuscous mark below costa, then curved round

the outer edge of the ocellus and strongly angled inwards on vein 2, then waved to inner margin, a large irregularly wedge-shaped black patch beyond it from below costa to vein 5 with a sinuous line from it to inner margin, excurved below veins 4 and 2; subterminal line represented by a sinuous series of rather lunulate black marks, excurved below veins 7 and 4 and with a similar obscure fuscous lunulate band before it. Hind wing brown with a slight purplish grey gloss; an oblique blackish medial line; a slightly waved post-medial blackish band defined on outer side by grey; a subterminal series of blackish bars, slightly incurved below vein 2. Underside of both wings greyish brown to beyond middle, then fuscous brown with a purplish gloss, a postmedial series of white spots in the interspaces, on fore wing excurved below veins 7 and 4, and subterminal series of slight white lunules.

♀. Hind wing with the medial line excurved beyond lower angle of cell, the postmedial band angled outwards below veins 7 and 4, the subterminal series of bars incurved between veins 6 and 4; the underside with the postmedial series of white spots and subterminal series of lunules incurved between veins 6 and 4.

Hab. GOLD COAST (*Johnston*), 1 ♂, Ashanti, Obuassi (*Graham*), 2 ♂; S. NIGERIA, Lagos, Yaba (*Sieger*), 1 ♂, Old Calabar (*Crompton*), 1 ♀, Onitsha, 1 ♂, 1 ♀, Oban Distr. (*Talbot*), 1 ♀; N. NIGERIA (*Dwileon*), 1 ♀; CONGO, Boma (*Christy*), 1 ♂; ANGOLA, Kibokolo do Zombo (*Lewis*), 1 ♀; BR. E. AFRICA, Masailand (*Hunter*), 1 ♀, Kilima'njaro (*Hannington*), 1 ♂, Taveta (*Rogers*), 1 ♀, Nairobi (*Crawshay*), 1 ♀; UGANDA, Bugoba (*Ladbury*), 1 ♂, 1 ♀, Ruwenzori (*Wollaston*), 1 ♀; GERM. E. AFRICA, Usagara, Kilossa (*Neave*), 1 ♀; BR. C. AFRICA, Tanganyika (*Hore*), 1 ♀, Blantyre (*Ambruster*), 1 ♀, Mlanji Boma (*Neave*), 1 ♀; MASHONALAND, Salisbury (*Marshall*), 1 ♀; MOZAMBIQUE, Beira (*Sheppard*), 1 ♂; NATAL, Tongaat R., 1 ♂, Malvern (*Marshall*), 1 ♂, Durban (*Gueinzius*, *McKen*, *Burrows*), 1 ♂, 2 ♀ type; MADAGASCAR (*Pfeiffer*) 1 ♀, Fianarantsoa (*Cowan*), 1 ♂, Pydekke, 1 ♂, 1 ♀; MAURITIUS (*Manders*), 1 ♂; SEYCHELLES, Aldabra (*Meade-Waldo*), 1 ♀. *Exp.* 120-134 millim.

7407. *Nyctipao macrops*.

Noctua macrops, Linn. Syst. Nat. xii. iii. App. p. 225 (1768); Moore, Lep.

Ceyl. iii. p. 145, pl. 164. f. 5; Hmps. Moths Ind. ii. p. 459.

Noctua buba, Fabr. Spec. Ins. ii. p. 209 (1781).

Patula boopis, Guen. Noct. iii. p. 178 (1852).

♂. Head, thorax, and abdomen brown, tegulæ blackish at tips, the patagia with blackish band towards tips, genital tufts of hair yellow. Fore wing brown with a slight purplish gloss; a curved black subbasal line from below costa to submedian fold; antemedial line black, oblique from costa to submedian fold, then sinuous; medial line represented by an oblique black bar from costa, and a line from cell to inner margin angled outwards in submedian fold and below vein 1; a very large ocellus in, beyond, and below end of cell, fulvous defined by black, a comma-shaped black mark in outer

part of centre with silvery-blue striae and irroration on inner side of its head and silvery-blue streak below veins 5 and 4 before its tail and slight oblique striga at end of tail; postmedial line black, arising below costa, excurved round the ocellus and strongly angled inwards below it, then excurved in submedian interspace and above inner margin, followed by another line with three maculate patches

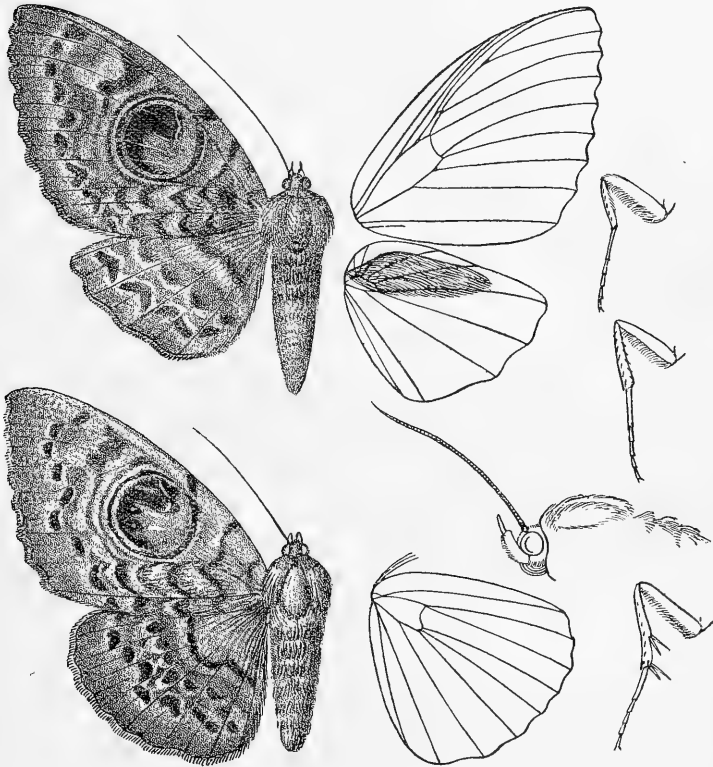


Fig. 43.—*Nyctipao macrops*, ♂, ♀. 3.

from below costa to vein 6, excurved to vein 2, then sinuous; a subterminal series of rather lunulate black bars, excurved below costa and incurved below vein 5, with a series of rather ill-defined blackish patches before it. Hind wing brown with a slight purplish gloss; a slightly sinuous blackish medial line; a waved postmedial line; a subterminal lunulate line with a series of maculate black patches before it. Underside pale brown to beyond middle, the terminal area fuscous brown except towards tornus; fore wing with postmedial series of eight white spots, displaced inwards above and below vein 5 and below 3, and subterminal series of white

lunules; hind wing with incurved postmedial series of three white spots and subterminal series of three lunules.

♀. Hind wing with the medial line excurved beyond lower angle of cell, a postmedial series of lunulate spots and a subterminal series with the spots below veins 7 and 4 displaced outwards and with series of irregular spots before it; the underside with postmedial series of seven white spots, the spots below veins 7 and 4 displaced outwards, and subterminal series of seven lunules.

Hab. JAPAN; C. CHINA, Kiukiang (*Pratt*), 1 ♀; W. CHINA, Tachien-lu (*Pratt*), 1 ♂; PUNJAB, Simla (*Harford*), 1 ♂, Kasauli (*Barrow*), 1 ♂, 2 ♀, Dharmasála (*Hocking*), 1 ♂, Jubbulpore (*F. Butler*), 1 ♂; NEPAL, 1 ♂; SIKHIM (*Fotheringham*), 1 ♀; ASSAM, Silhet (*Badgley*), 1 ♂, 2 ♀; GANJAM, 1 ♀; BOMBAY, 2 ♀; MADRAS, Malabar, 1 ♂, Coorg, 1 ♂, Nilgiris (*Hampson*), 1 ♂, 1 ♀, Shevaroy, 1 ♂; CEYLON (*Templeton*), 1 ♂, 1 ♀; UP. BURMA (*Wood*), 1 ♀; S. BURMA (*Carpenter*), 1 ♀, Tenasserim (*Bingham*), 1 ♀; TAVOY, 1 ♂. *Exp.* 128-154 millim.

SECT. III. Hind wing of male with the neurulation normal.

A. Hind legs of male with the tibiae above and below except at base and the 1st joint of tarsus above fringed with long hair.

7408. *Nyctipao atavistis*, n. sp.

♂. Head, thorax, and abdomen dark brown. Fore wing dark brown; antemedial line blackish, bent inwards below submedian fold and excurved at vein 1; a large inverted comma-shaped discoidal mark defined by blackish, with blue-white scales beyond it on outer side and below, its centre defined by whitish on inner side; postmedial line blackish, arising below the costa, sinuous, bent inwards below vein 3; an obliquely incurved series of three white spots from below the costa to above vein 6, the lowest larger, before the subterminal series of small blackish spots in the interspaces, incurved at vein 5 and below vein 3, the spots towards costa with white points on their inner side. Hind wing dark brown; an indistinct sinuous dark antemedial line; two faint dark bars at end of cell; an indistinct oblique slightly sinuous dark medial line; a subterminal series of faint dark spots in the interspaces, incurved at discal fold. Underside grey-brown; fore wing with curved postmedial line, a faint sinuous dark line arising from the three white spots with a minute white spot on it below vein 4, subterminal and terminal series of small white and blackish lunules; hind wing with dark postmedial line and subterminal and terminal series of small white and blackish lunules.

Hab. UGANDA, Entebbe (*Neave*), 1 ♂ type. *Exp.* 82 millim.

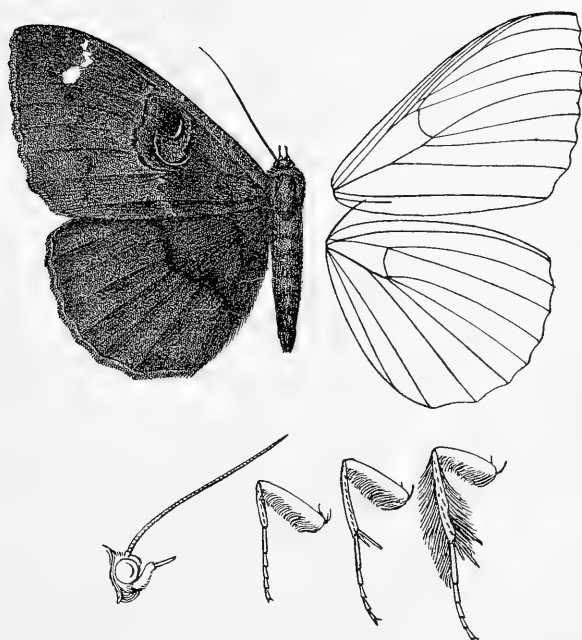


Fig. 44.—*Nyctipao atavistis*, ♂. $\frac{1}{2}$.

- B. Hind legs of male with the tibiae and tarsi not fringed with long hair.
 a. Wings of male entirely clothed with velvety androconia.

***7409. *Nyctipao orcina*.**

Argiva orcina, Feld. Reis. Nov. pl. 115. f. 14 (1874).

♂. Head, thorax, and abdomen deep chocolate-brown. Fore wing deep chocolate-brown with a faint purple gloss; a large whorl-shaped discoidal mark faintly defined by blackish, the inner part of the centre with inverted comma-shaped mark with bilobate head with slight white spot on it; a conical yellow spot below costa towards apex. Hind wing uniform deep chocolate-brown with a faint purple gloss. Underside deep red-brown; fore wing with the spot below apex white, a faint waved dark subterminal line with minute points on its costal half, incurved below vein 5 and at submedian fold; hind wing with slight yellow striga below costa on a faint waved subterminal line.

Hab. MOLUCCAS (*Lorquin*), type † ♂ in Coll. Rothschild. *Exp.* 116 millim.

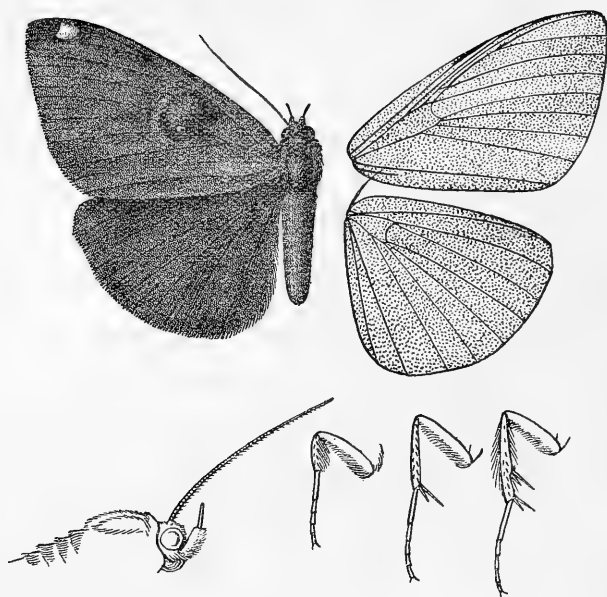


Fig. 45.—*Nyctipao orcina*, ♂. $\frac{2}{3}$.

- b. Fore wing of male clothed with velvety androconia on upperside to post-medial line except at costa; hind wing clothed with velvety androconia to the postmedial line.

7410. *Nyctipao albicincta*.

Erebus albicinctus, Koll. Hügel's Kaschmir, iv. p. 474, pl. 22 (1844);
Hmps. Moths Ind. ii. p. 461.

Erebus rivularis, Westw. Cab. Or. Ent. p. 57, pl. 28. f. 3 (1848).

♂. Head, thorax, and abdomen black-brown. Fore wing clothed with rough dark brown androconia to the postmedial line except the costa and discoidal stigma, the terminal area blue-black; the discoidal stigma whorl-shaped, its centre with large black lunule on outer side and brown-red on inner side with silvery blue irroration and two points on it and defined on inner side by black, the outer part of the whorl grey-green with a slight curved dark line on it; postmedial line white, arising below costa, oblique to below vein 6 where it is slightly angled, angled outwards to near termen below vein 4, then incurved and ending at vein 1; veins 4 to 1 often slightly streaked with white on terminal area; the termen and cilia white. Hind wing clothed with rough dark-brown androconia to the postmedial line, the terminal area blue-black; postmedial line white, strong, oblique towards costa and angled

outwards below veins 7 and 4; the veins of terminal area streaked with white; termen and cilia white. Underside of both wings dark brown with a slight purplish tinge to the white postmedial line, the terminal areas slightly irrorated with grey.

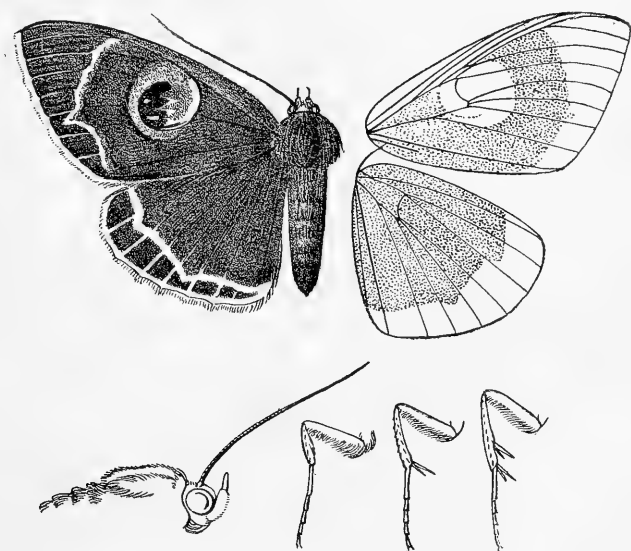


Fig. 46.—*Nyctipao albicincta*, ♂. $\frac{2}{3}$.

♀. Both wings brilliant blue-black, with the hair on basal area only dark brown; a diffused curved postmedial dark shade.

Ab. 1. ♀. Hind wing without white streaks on the veins of terminal area.—Formosa.

Hab. FORMOSA (*Seeböhm*), 1 ♀; W. CHINA, Kwei-chow, 1 ♂; PUNJAB, 1 ♀, Kulu, Sultanpur (*G. Young*), 1 ♂, 1 ♀, Simla (*Harford*), 2 ♂, 2 ♀, Kasauli, 1 ♂, Masuri (*Hutton*), 1 ♂, Dharmasāla (*Hocking*), 3 ♂, 1 ♀, Abbottabad (*Yerbury*), 1 ♀; NEPAL (*Ramsay*), 1 ♂; SIKHIM; ASSAM (*Badgley*), 2 ♂, 2 ♀, Khāsis (*Parish*), 1 ♀, Cherra Panji (*Buckley*), 1 ♂, Silhet, 1 ♂, Shillong (*Parish*), 1 ♂; ? MADRAS, Nilgiris; BURMA, Hsipaw (*de Nicéville*), 1 ♂. *Exp.* 108–136 millim.

- c. Fore wing of male on upperside with the area below the cell and discoidal stigma clothed with rough androconia to beyond middle but not to the postmedial line; hind wing wholly clothed with rough androconia except a narrow terminal band.

7411. *Nyctipao pilosa*.

Nyctipao pilosa, Leech, Trans. Ent. Soc. 1900, p. 548.

♂. Head, thorax, and abdomen fuscous brown, the last with a

faint bluish tinge. Fore wing brown strongly suffused with steel-blue, the androconia on inner area fuscous brown; a slight sinuous dark antemedial line from costa to median nervure; a large whorl-shaped discoidal mark, defined by black, the inner part of centre with inverted comma-shaped dull red mark with bilobate head defined by silvery blue, the outer part of centre with large blue-black patch defined on outer side by dull red, a faint dark shade beyond the discoidal patch from below costa to vein 4; a slight sinuous whitish postmedial line, arising below costa, oblique to below vein 4 and angled outwards below vein 6, obsolescent and incurved from below vein 4 to above tornus. Hind wing fuscous

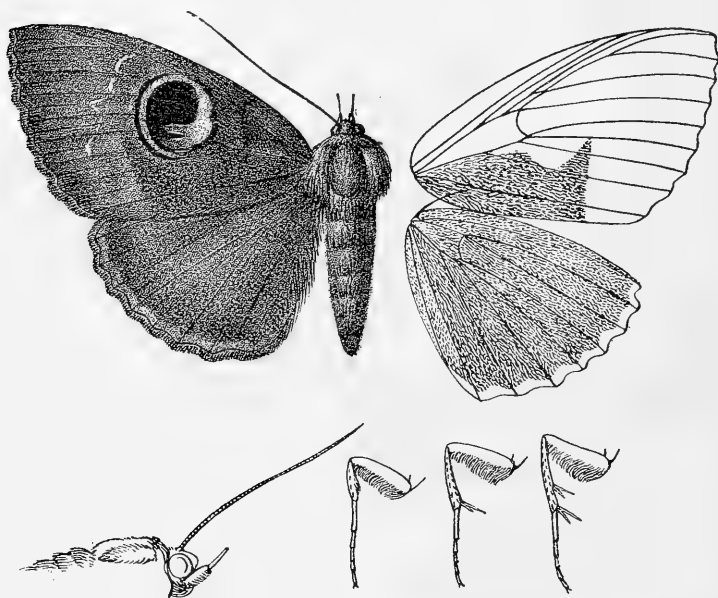


Fig. 47.—*Nyctipao pilosa*, ♂. 1.

brown, the narrow terminal band purple-blue; cilia brown. Under-side of both wings brown suffused with steel-blue; fore wing with the whitish postmedial line more distinct; hind wing with slightly sinuous subterminal series of minute whitish spots.

♀. Wings wholly suffused with steel-blue except the brown hair at base; fore wing with the indistinct antemedial line continued on inner area, the discoidal stigma with the black centre defined on outer side by grey, an oblique sinuous fuscous line from the stigma to inner margin, the shade beyond it continued to inner margin and diffused in submedian interspace; hind wing with diffused medial dark line, a slight waved whitish postmedial line bent outwards between veins 4, 3.

Hab. W. CHINA, Chang-Yang (*Pratt*), 1 ♂ type, Wa-shan (*Pratt*), 1 ♀, Chia-kou-ho (*Pratt*), 2 ♀, Ta-chien-lu (*Pratt*), 3 ♀. *Exp.* 94–108 millim.

d. Fore wing of male not clothed with androconia; hind wing on upperside clothed with rough androconia to near postmedial line except at inner margin.

7412. *Nyctipao glaucopsis*.

Nyctipao glaucopsis, Wlk. xiv. 1306 (1857); Butl. Ill. Het. B.M. vi. p. 45, pl. 112. f. 4; Hmps. Moths Ind. ii. p. 461.

Nyctipao prunosa, Moore, P. Z. S. 1883, p. 26.

♂. Head, thorax, and abdomen fuscous brown. Fore wing brown strongly suffused with purple-blue except the brown hair at

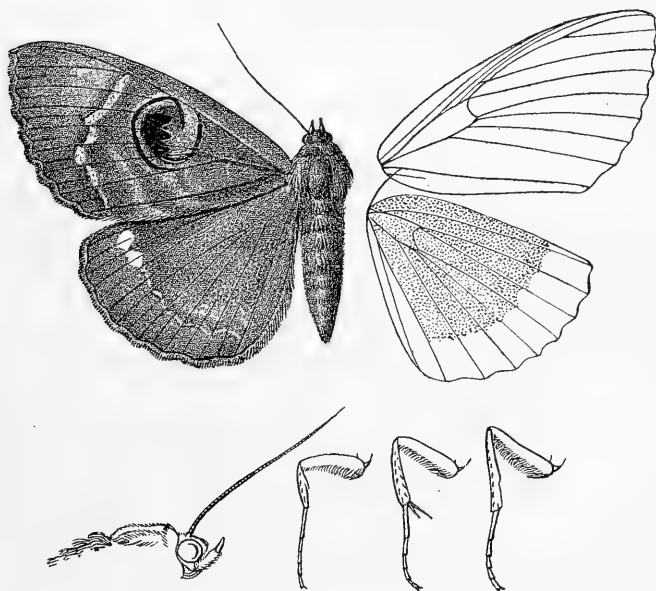


Fig. 48.—*Nyctipao glaucopsis*, ♂. 1.

base; a large whorl-shaped discoidal mark defined by black, the inner side of its centre with inverted greenish brown comma-shaped mark with bilobate head defined by brilliant blue and white scales, the outer part of centre with black patch defined on outer side by grey-green; a faint dark shade beyond the discoidal mark, arising below costa and excurved beyond the stigma, then erect; an indistinct grey-white postmedial line, arising below costa, oblique to below vein 4, and angled outwards below vein 6, incurved below vein 4 and ending at vein 1. Hind wing clothed with fuscous

brown androconia to near the postmedial line, the inner margin and terminal area suffused with purple-blue; two postmedial white spots below costa with an indistinct slightly waved whitish line from them to inner margin; cilia brown. Underside of both wings brown tinged with purple-blue; fore wing with the white postmedial line broken up into spots; hind wing with postmedial series of small white spots.

♀. Hind wing purple-blue with the hair on basal area only brown.

Hab. PUNJAB, Simla (*Read, Harford*), 2 ♂, 2 ♀, Kasauli, 3 ♂ type *prunosa*, Dharmasala (*Hocking*), 2 ♀; SIKHIM, Chentong (*Tibet Exp.*), 1 ♀; ASSAM (*Badgley*), 1 ♂, Silhet, 1 ♀ type, Cherra Panji (*Buckley*), 1 ♀. *Exp.* 86–110 millim.

e. (Nyctipao.) Wings of male not clothed with velvety androconia.

a. Wings with white or pale subapical mark.

*a*¹. Fore wing of female with the medial line oblique and straight below vein 2.

*a*². Hind wing of male without yellowish postmedial band.

*a*³. Hind wing of female without white postmedial band

*b*³. Hind wing of female with white postmedial band. *crepuscularis.*

*a*⁴. Hind wing of male with dentate whitish medial line.

*a*⁵. Fore wing of female with large wedge-shaped white subapical spot *clavifera.*

*b*⁵. Fore wing of female with small bar-shaped white subapical spot *dentifascia.*

*b*¹. Hind wing of male with oblique diffused dark medial line *variegata.*

*b*². Hind wing of male with yellowish postmedial band *bismarcia.*

*b*¹. Fore wing of female with the medial line erect and waved below vein 2 *leucotænia.*

b. Wings without white or pale subapical mark.

*a*¹. Wings with the inner edge of the postmedial band evenly curved..... *gemmans.*

*b*¹. Wings with the inner edge of the postmedial band sinuous.

*a*². Wings with the cilia white..... *jaintiana.*

*b*². Wings with the cilia not white *superba.*

7413. *Nyctipao crepuscularis.*

Noctua crepuscularis, Linn. Syst. Nat. ed. xii. 1, 2, p. 811 (1767); Cram. Pap. Exot. ii. p. 98, pl. 159. f. A; Moore, Lep. Ceyl. iii. p. 148, pl. 165. ff. 1, 1 a; Hmps. Moths Ind. ii. p. 461.

Nyctipao ephesperis, Hübn. Verz. p. 272 (1827).

Nyctipao lætitia, Butl. Ill. Het. B. M. iii. p. 26, pl. 47. f. 9 (1879).

Head and thorax dark brown; pectus and abdomen more ochreous brown, the latter with dark dorsal band on basal segment and whitish bands on three following segments. Fore wing dark brown, the terminal area more or less suffused with grey; a dark

antemedial line defined on inner side by greyish, angled outwards below costa, excurved at median nervure, then oblique; an inverted comma-shaped discoidal mark with bilobate head, defined by black and on inner side also by whitish and the head by silvery blue scales with some blackish beyond it; medial line black defined on outer side by a narrow white band, excurved from costa round the discoidal mark and angled inwards on vein 2, then very oblique to inner margin towards base, a diffused ochreous white band beyond it from vein 6 to inner margin; a slight dark minutely waved

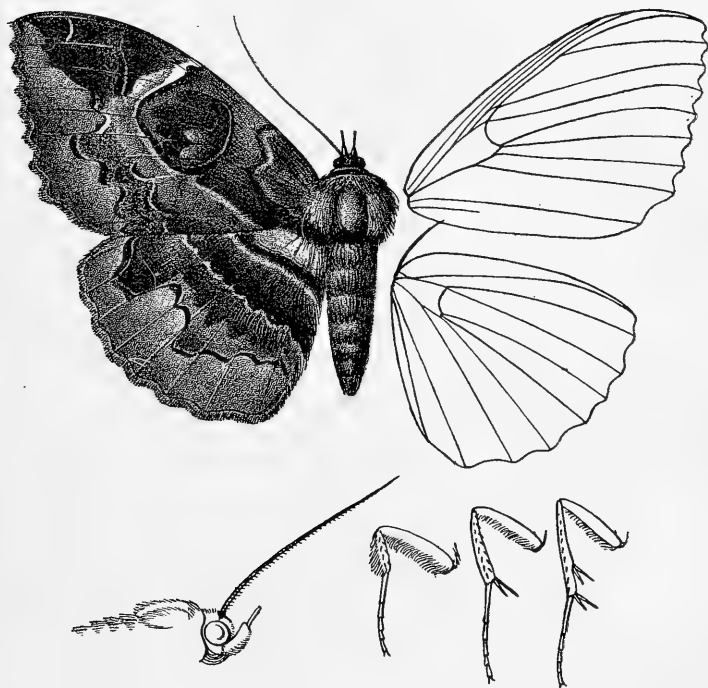


Fig. 49.—*Nyctipao crepuscularis*, ♂. 1.

postmedial line, defined on outer side by white and with grey or violaceous white suffusion beyond it, erect to below vein 4 where it is slightly angled outwards, then very slightly incurved; a bidentate white spot below costa towards apex with the slight waved whitish subterminal line defined on outer side by dark brown arising from it and with more distinct white lunules on it in parts, oblique to below vein 5, strongly bent outwards between veins 5 and 4, then again oblique to submedian fold and excurved above inner margin, a dark brown patch on costal area beyond the white spot. Hind wing dark brown, the terminal half reddish brown except the post-

medial costal area; a diffused ochreous white subbasal band followed by the obliquely curved black antemedial line defined on outer side by ochreous white; a minutely waved whitish medial line with some grey or violaceous white suffusion beyond it; a very irregularly waved black subterminal line slightly defined on inner side by ochreous and with oblique white mark before it below costa, strongly incurved between veins 6 and 4 and bent outwards between veins 4 and 3, then oblique to inner margin. Under-side of both wings ochreous brown; fore wing with indistinct curved whitish medial band more or less developed, postmedial series of white spots, and series of white spots on the subterminal line, the spot below costa large; hind wing with black discoidal striga, indistinct double curved antemedial line, dark medial line, and the irregularly waved subterminal line with white mark on it below costa.

Ab. 1. *latitia*. Fore wing without the ochreous white band beyond the medial line, the postmedial line stronger and pure white; hind wing without the ochreous white subbasal band, the medial line strong, pure white and not waved.

Hab. JAPAN, Hakodate (*Whiteley*), 1 ♀ type *latitia*, Nagasaki (*Leech*), 1 ♀, Fusiki (*Leech*), 1 ♀, Satsuma (*Leech*), 1 ♀, Kiushiu, 1 ♂, Tsuruga (*Leech*), 1 ♂, Yokohama (*Pryer*), 2 ♂; Loo-CHOO Is. (*Pryer*), 1 ♂, 1 ♀; CENTR. CHINA, Kiukiang (*Pratt*), 2 ♂; W. CHINA, Chang-yang (*Pratt*), 1 ♂, Omei-shan, 1 ♂; PUNJAB (*Horne*), 1 ♂, Masuri, 1 ♂, 1 ♀, Kasauli, 1 ♀, Dharmasala (*Hocking*), 1 ♂, 2 ♀; SIKHIM (*Rothney*), 1 ♂, 2 ♀; ASSAM, Shillong (*Rawlings*), 1 ♀, Dibrugrah (*Ward*), 2 ♀, Cachar (*Grant*), 1 ♀; MADRAS, Belgaum (*Swinhoe*), 1 ♀, Malabar (*Watkins*), 2 ♂, Nilgiris (*Hampson*), 2 ♂, Shevaroy's (*Shortt*), 1 ♀; CEYLON, 1 ♂, 1 ♀, Peradeniya (*Yerbury*), 1 ♂, Kelani Valley (*Braine*), 1 ♂; BURMA, 1 ♂, Moulmein (*Clerk*), 1 ♀, Tenasserim, Thoungyeen Valley (*Bingham*), 1 ♂; ANDAMANS, 1 ♂, 1 ♀; STRAITS SETTLEMENTS, Malacca (*Pinwill*), 1 ♂, Singapore (*Ridley*), 4 ♂, 4 ♀; SUMATRA (*Forbes*), 1 ♀; BORNEO, 1 ♂; PHILIPPINES, Manila, 1 ♂; JAVA (*Horsfield*), 1 ♂; NEW GUINEA, Waigu, 1 ♂, 2 ♀. *Exp.* 86-116 millim.

7414. *Nyctipao clavifera*, n. sp. (Plate CCVI. fig. 3.)

Nyctipao leucoïænia, Guen. Noct. iii. p. 184 (part), pl. 20. f. 1.

♀. Head, thorax, and abdomen fuscous brown; pectus, legs, and ventral surface of abdomen greyish. Fore wing fuscous brown, the basal area with a slight purplish grey gloss; an indistinct dark antemedial line, oblique below the cell; an inverted comma-shaped discoidal mark with bilobate head, defined by black and its head by silvery blue scales, some white and rufous in inner part of centre; medial line black defined on outer side by white, excurved from costa round and below the discoidal mark, then indistinct and oblique to inner margin; an oblique pure white postmedial band with dentate outer edge, arising below costa and narrowing above;

a wedge-shaped white patch below costa before apex with indented outer edge, followed by the interrupted waved white subterminal line defined on outer side by black-brown, oblique to the postmedial band below vein 5 and strongly bent outwards between veins 4 and 3; the terminal area slightly greyer with indistinct dark striæ. Hind wing fuscous brown; an indistinct dark antemedial line excurved to submedian fold, then oblique; a pure white postmedial band with dentate outer edge; subterminal line with narrow oblique white bar below costa, the white defined on outer side by black-brown, bent inwards to near postmedial band, waved and defined on outer side by grey hair between veins 6 and 4 and from vein 3 to inner margin. Underside of both wings with the basal half greyish, the white postmedial band of fore wing broken up into spots.

Hab. HONG KONG (*Bowring*), 1 ♀ type; PHILIPPINES, Manila. *Exp.* 118 millim.

7415. *Nyctipao dentifascia*. (Plate CCVI. fig. 4 ♂, 5 ♀.)

Nyctipao dentifascia, Wlk. xxxiii. 947 (1865).

Nyctipao variegata, Swinh. Cat. Het. Mus. Oxon. ii. p. 114 (1900), nec Butl. 1887.

♂. Head and thorax dark brown, the neck with ochreous ring; pectus ochreous; abdomen dark brown with greyish band near base, the ventral surface ochreous. Fore wing dark brown; an indistinct dark antemedial line defined on inner side by greyish, angled outwards below costa and excurved below the cell; an inverted comma-shaped discoidal mark with bilobate head, defined by black and whitish and its head by silvery blue; medial line black with diffused ochreous white band beyond it, excurved from costa round the discoidal mark and angled inwards below it on vein 2, then oblique to inner margin towards base; traces of a dentate postmedial line, oblique below vein 4, a black-brown patch beyond it from costa to vein 6; a lunulate subterminal white spot below costa with a small lunule below it; the waved subterminal line with slight white lunules on it defined by black-brown, strongly incurved between veins 6 and 4 and bent outwards between veins 4 and 3. Hind wing dark brown, the postmedial area ochreous brown except towards costa; a diffused ochreous brown subbasal band followed by the dark antemedial line defined on outer side by ochreous; a dentate grey medial line with some grey irroration beyond it; an oblique white subterminal spot below costa with small white spot below it on the inner edge of the irregularly waved black subterminal line slightly defined on inner side by ochreous, incurved between veins 6 and 4 and bent outwards between veins 4 and 3. Underside of both wings ochreous yellow, the terminal area brown with numerous indistinct dark striæ; fore wing with curved medial line from costa to vein 2, indistinct dentate postmedial line and series of white lunules representing the irregular subterminal line; hind wing with dark discoidal point, indistinct curved antemedial

line and dentate medial and postmedial lines, the subterminal line as above.

Ab. 1. Fore wing with more white on postmedial area; hind wing with the costal half white to beyond middle; the underside white with the basal half of fore wing and base of hind wing suffused with brown, also the terminal area of both wings.

♀. Head, thorax, and wings black-brown; both wings with prominent oblique white postmedial band with dentate outer edge; fore wing with the subterminal white spot below costa reduced to a striga, hind wing with it narrow and oblique; underside of both wings brown with maculate white postmedial band and irregular subterminal series of black and white lunules.

Hab. QUEENSLAND (*Elsley*), 1 ♀ type, type † ♂ *variegata* in Mus. Oxon., Brisbane (*Turner*), 1 ♂, 1 ♀. *Exp.* 98-120 millim.

7416. *Nyctipao variegata*. (Plate CCVI. figs. 6 ♂, 7 ♀.)

Nyctipao variegata, Butl. A. M. N. H. (5) xix. p. 432 (1887), ♂.

Nyctipao caliginea, Butl. A. M. N. H. (5) xix. p. 433 (1887), ♀.

♂. Head and tegulæ red-brown; thorax red-brown mixed with greyish; palpi ochreous brown; pectus ochreous; legs grey-brown; abdomen ochreous dorsally suffused with brown except a band on 2nd segment. Fore wing grey suffused with dark red-brown; a curved slightly sinuous antemedial blackish line; an inverted comma-shaped discoidal mark with bilobate head, defined by black and yellow and its head by silvery blue scales, some yellow in centres of both head and tail; postmedial line strong, black-brown defined on outer side by a broad yellowish white band, whiter towards costa, arising from costa just beyond the discoidal mark and ex-curved round it, then angled inwards below it on vein 2 and oblique to inner margin towards base, a brownish line beyond its ex-curved part; a darker brown patch on postmedial area from costa to vein 5, spot between veins 4 and 3, and triangular patch on inner area; a conical white spot below costa towards apex followed by a more or less developed series of white lunulate spots, oblique to vein 5 and bent outwards between veins 4 and 3, the spot above vein 4 sometimes elongate; the terminal area with faint dark striæ. Hind wing greyish suffused with brown, the basal area ochreous white; an oblique blackish subbasal line; an indistinct oblique medial line; a wedge-shaped white patch below apical part of costa and sub-terminal series of black and white lunules, incurved between veins 6 and 4, and bent outwards between veins 4 and 3. Underside of both wings ochreous white, the terminal areas suffused and striated with brown; fore wing with curved medial line, the subterminal white spots well developed; hind wing with small black discoidal spot, oblique brown antemedial line, and the subterminal series of white spots well developed.

♀. Fuscous brown; fore wing with the ex-curved part of medial

line slightly defined on outer side by white but without the broad yellowish white band beyond it, a white postmedial band with irregularly dentate outer edge, arising below costa where it is attenuated and slightly bent outwards and somewhat oblique below vein 4; hind wing with white medial band with its outer edge produced to streaks on the veins and in the interspaces; the underside fuscous brown, the basal half with a slight greyish tinge, the white band reduced to spots on fore wing and on hind wing with its outer edge dentate in the interspaces, the subterminal spot between veins 4, 3 on each wing nearer the termen.

Ab. 1. ♀. Both wings with the subterminal white spot between veins 4 and 3 oblique.

Hab. SOLOMONS, Guadalcanar (*Meek*), 2 ♂, Alu (*Woodford*), 1 ♂, 1 ♀ type, and type *caliginea*, Gizo Is. *Exp.* 88-124 millim.

7417. *Nyctipao bismarcia*, n. sp. (Plate CCVII. figs. 1 ♂, 2 ♀.)

♂. Head, thorax, and abdomen fuscous brown; pectus in front and ventral surface of abdomen rufous. Fore wing dark brown; an indistinct diffused dark antemedial line, oblique below submedian fold; an inverted comma-shaped discoidal mark with bilobate head, defined by black and yellowish, and its head by silvery blue, its centre mostly yellow tinged with rufous; medial line black defined on outer side by yellow, arising from costa and curved round and below the discoidal mark, then indistinct, diffused, dark, and oblique from vein 2 to inner margin; an oblique yellow postmedial band with a waved outer edge, arising just below costa, narrowing above and with its outer edge indented at discal fold; a subterminal triangular white spot with indented outer edge below costa, followed by a series of slight yellowish or white lunulate spots, oblique to discal fold near the postmedial band, then excurved; the terminal area rather greyer with numerous indistinct dark striæ. Hind wing dark brown; an indistinct oblique dark antemedial line; a broad postmedial yellow band with dentate outer edge; an oblique wedge-shaped subterminal white spot below costa, followed by a series of lunulate yellow and black-brown marks, incurved to close to the postmedial band between veins 6 and 4 and below vein 2. Underside of both wings with the subterminal spots white and well developed; fore wing with the postmedial yellow band reduced to spots.

♀. Fore wing with the excurved part of medial line defined by white; the postmedial band and subterminal spots of both wings pure white.

Hab. NEW BRITAIN (*Mathew*), 1 ♂ type; NEW IRELAND (*Brown*), 2 ♂, 1 ♀. *Exp.* 112-120 millim.

7418. *Nyctipao leucotænia*. (Plate CCVII. figs. 7 ♂, 8 ♀.)

Noctua crepuscularis, Clerck, Icones, pl. 53; Cram. Pap. Exot. ii. p. 99, pl. 160. f. A (nec Linn.).

Nyctipao leucotænia, Guen. Noct. iii. p. 184 (1852).

Nyctipao obscura, Beth.-Baker, Nov. Zool. xiii. p. 250 (1906).

♀. Head, thorax, and abdomen fuscous brown with a slight purplish-grey gloss; pectus and ventral surface of abdomen greyer. Fore wing fuscous brown with a purplish-grey gloss; an indistinct dark antemedial line, angled outwards below costa and excurred in submedian interspace; an inverted comma-shaped discoidal mark with bilobate head, defined by black and whitish and its head by silvery blue, some rufous and whitish in centre; medial line black, defined on outer side by white, arising from costa, excurred round the discoidal mark and angled inwards below it, then fuscous defined by grey and sinuous to inner margin; an oblique pure white postmedial band with dentate outer edge, angled outwards below vein 4; a subterminal triangular white spot with indented outer edge below the costa, followed by an interrupted waved white line, oblique to below vein 5 and bent outwards between veins 4 and 3, the area beyond it rather greyer. Hind wing fuscous brown with a slight purplish-grey gloss; a dark sinuous antemedial line; a pure white postmedial band with dentate outer edge; an oblique wedge-shaped subterminal white spot below the costa followed by an interrupted waved white line defined on outer side by black, oblique to below vein 5 and bent outwards between veins 4 and 3, the area beyond it rather greyer. Underside of both wings with the basal half greyer; fore wing with the postmedial band reduced to spots; both wings with irregular subterminal series of white spots.

♂. Dark reddish brown; fore wing with the area beyond the medial line with ochreous mixed except the postmedial area from costa to vein 5, the medial line oblique and defined on outer side by ochreous white below vein 2, the white postmedial band replaced by an indistinct ochreous-white line arising from the medial line below costa and excurred to vein 5, then oblique; hind wing with ochreous mixed, the postmedial band replaced by a dark minutely dentate line defined on outer side by a faint greyish-brown band with waved outer edge; underside of both wings with the postmedial white band absent; fore wing dark reddish brown with a faint ochreous tinge beyond the medial line; hind wing ochreous tinged with red-brown, the costal and terminal areas suffused with red-brown.

Ab. 1. ♂. Wings darker, with hardly a trace of the ochreous tones.

Ab. 2. *obscura* ♀. Both wings with the white band suffused with fuscous brown and very indistinct.

Hab. ? JAVA; AMBOINA (*Pratt*), 1 ♀; BATCHIAN (*Doherty*), ♂, ♀

in Coll. Druce; BR. N. GUINEA, 1 ♂, Ekeikei (*Pratt*), type + ♀ *obscura* in Coll. Bethune-Baker, Mt. Kebea, Dinawa, Babooni, Aroa R. (*Meek*). *Exp.* 110–120 millim.

7419. *Nyctipao gemmans*. (Plate CCVII. figs. 4 ♂, 5 ♀.)

Nyctipao gemmans, Guen. Noct. iii. p. 182 (1852), ♀; Hmps. Moths Ind. ii. p. 461.

Nyctipao ophristigmaris, Hmps. Trans. Ent. Soc. 1895, p. 305, ♂; id. Moths Ind. iv. p. 531.

♂. Head, thorax, and abdomen fuscous brown. Fore wing fuscous brown, the terminal area with numerous slight ochreous striae; a curved dark antemedial line; an inverted comma-shaped discoidal mark with bilobate head, defined by black and its head by silvery blue, with a black patch beyond it, its centre reddish brown with a grey line on inner side of tail; medial line black, arising below the costa, excurved round the discoidal mark and angled inwards below it on vein 2, then erect to inner margin, the excurved part defined by reddish brown with a slight fuscous line on it between veins 7 and 2; a curved dark postmedial line slightly defined on outer side by ochreous and from costa to vein 6 by an ochreous-white band bidentate below; an indistinct waved dark subterminal line, defined on inner side by ochreous striae between veins 7 and 4, slightly incurved above vein 4 and excurved below it. Hind wing fuscous brown, the terminal area with numerous slight ochreous striae; a rather diffused dark medial line; postmedial line curved, blackish defined on inner side by ochreous; a waved dark subterminal line defined on inner side by ochreous marks excurved below the costa and between veins 4 and 3. Under-side of both wings fuscous brown; fore wing with white postmedial bar from below costa to vein 6, narrowing below vein 7, and subterminal series of white striae, reduced to points towards costa, incurved at discal fold and below vein 3; hind wing with subterminal series of white spots and striae, excurved below costa and incurved below vein 5.

♀. Fore wing with the tail of the discoidal mark dentate on outer side at vein 6, a white band beyond the postmedial line with sinuous outer edge, the ochreous marks on inner side of subterminal line more complete except towards costa; hind wing with white band beyond the postmedial line with dentate outer edge, the pale marks before the subterminal line ochreous.

Ab. 1. ♀. Both wings with the band beyond the postmedial line reduced to a creamy-white line, the pale marks before the subterminal line absent.

Hub. BHUTÁN (*Dudgeon*), 1 ♂ type *ophristigmaris*; ASSAM (*Badgley*), 4 ♀, Silhet (*Stainsforth*), 4 ♀. *Exp.* 76–92 millim.

7420. *Nyctipao jaintiana*. (Plate CCVII. fig. 6.)

Nyctipao jaintiana, Swinh. A. M. N. H. (6) xvii. p. 362 (1896); Hmps. Moths Ind. iv. p. 531.

Head, thorax, and abdomen black-brown. Fore wing black-brown; an indistinct dark antemedial line, angled outwards below costa and median nervure; an inverted comma-shaped discoidal mark with bilobate head, defined by black and reddish brown and its head by blue-white, its tail filled in with red-brown, a black patch beyond it; medial line black, arising from costa, excurved round the discoidal mark and angled inwards below it on vein 2, then indistinct and erect to inner margin, followed by a faint curved dark shade; a sinuous pure white postmedial band, arising below costa and ending at vein 1, towards which it narrows to a line, oblique to below vein 4, then incurved, its outer edge dentate below costa, at veins 7, 6, and below 4; cilia pure white. Hind wing black-brown; two indistinct dark medial lines; a fine lunulate white postmedial line, oblique towards costa and excurved at veins 6 and 4, ending at vein 1; cilia pure white. Underside of fore wing with the band broken up into spots.

Hab. ASSAM, Khâsis, Jaintia Hills, 1 ♂, 1 ♀ type. *Exp.* ♂ 94, ♀ 104 millim.

7421. *Nyctipao superba*. (Plate CCVII. fig. 3.)

Nyctipao superba, Swinh. A. M. N. H. (8) i. p. 66 (1903).

♀. Head, thorax, and abdomen black-brown. Fore wing black-brown suffused with purple-blue; traces of a curved dark antemedial line; an inverted comma-shaped discoidal mark with bilobate head defined by black and by blue-white except on inner side of tail, its centre blue-grey with two small white spots on the head, a black patch beyond it; medial line black defined on each side by blue-grey, arising below the costa, excurved round the discoidal mark and obsolete below vein 2; a narrow sinuous white postmedial band from below costa to vein 1, towards which it is reduced to a line, excurved below veins 6 and 4. Hind wing black-brown suffused with purple-blue except towards base; two obliquely placed white postmedial spots from below costa to vein 6, followed by a white line, incurved and waved between veins 6 and 4, then slightly sinuous and terminating at vein 1.

Hab. ASSAM, Khâsis, 1 ♀ type. *Exp.* 106 millim.

Genus **METOPTA**.

Type.

Metopta, Swinh. Cat. Het. Mus. Oxon. ii. p. 170 (1900) *rectifasciata*.

Proboscis fully developed; palpi obliquely upturned, the 2nd joint reaching to vertex of head and broadly scaled, the 3rd long; frons smooth, with large tuft of hair; eyes large, round; antenæ of male bipectinate with long branches to apex, of female with short branches; thorax clothed with long rough hair

only and without crests; all the tibiae spined, the fore tibiae fringed with long hair on outer side, the mid and hind tibiae smoothly scaled; abdomen clothed with rough hair at base of dorsum, but without crests. Fore wing with the apex rounded, the termen evenly curved and slightly crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the cell about one-third length of wing; veins 3 and 5 from close to angle of cell; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

7422. *Metopta rectifasciata*.

Spirama rectifasciata, Mén. Cat. Lep. Het. Mus. Petr. pl. 17. f. 6 (1863).

Spiramia japonica, Wlk. xxxiii. 948 (1865), nec Guen.

Spirama interlineata, Butl. A. M. N. H. (5) i. p. 291 (1878); id. Ill. Het. B.M. ii. p. 41, pl. 34. f. 2.

Head and thorax dark brown, the latter with the hairs slightly tipped with ochreous; tegulae slightly tipped with ochreous; antennae brownish white; legs brownish white above; abdomen dark brown. Fore wing dark brown, the basal, costal, and terminal areas strongly suffused with purple-grey; an indistinct sinuous dark

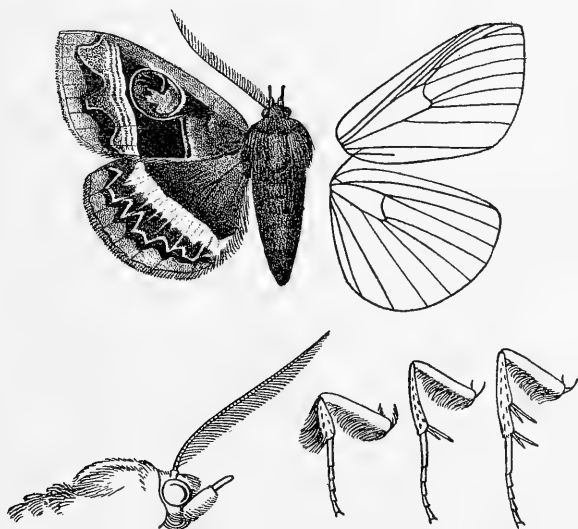


Fig. 50.—*Metopta rectifasciata*, ♂. $\frac{1}{2}$.

antemedial line; an inverted comma-shaped discoidal mark with trilobate head, defined by black and on inner and outer sides of tail by yellowish white, its head with blue-black streaks at the indentations, its centre pale red-brown irrorated with white, a diffused black patch beyond the tail with red-brown beyond it and the head of the discoidal mark; medial line black defined on outer side by yellowish white, arising from the tail of the discoidal mark and ex-curved round and below it, then erect to inner margin; a yellowish

white streak on inner margin from the medial line to the broad oblique yellowish-white postmedial band, traversed by two fine lines of brown scales, its outer part tinged and irrorated with brown and its outer edge strongly excurved below costa and at middle and slightly above inner margin and defined by dark brown forming patches in its indentations; cilia dark brown at tips. Hind wing dark brown, the terminal area suffused with purple-grey; a white postmedial band, its outer edge emitting short streaks on the veins and excised at costa; subterminal line ochreous white, waved, angled inwards below costa and above and below vein 5; cilia dark brown. Underside of both wings greyish brown, the terminal area suffused with grey, discoidal lunules defined at sides by black and white, a dark medial line, on fore wing excurved at middle, a rather maculate moderately broad postmedial white band, not reaching costa of either wing, and with its outer edge excised at discal fold, a subterminal series of white and dark brown lunules, on both wings excurved below costa and vein 4 and incurved between veins 6 and 4.

Hab. JAPAN (*Fortune, Bristowe, Strickland*), 2 ♂, 2 ♀ type *japonica*, Hakodaté, 1 ♂, 1 ♀, Tsuruga (*Leech*), 1 ♂, Kiushiu, 1 ♀, Nikko (*Maries*), 1 ♀, Tokio (*Maries*), 2 ♀, Yokohama (*Jonas, Manley, Pryer*), 4 ♂, 1 ♀ type *interlineata*; COREA, Gensan (*Leech, Ito*), 1 ♂, 2 ♀; N. CHINA, 1 ♀; C. CHINA, Fokien, Sam-sah (*de la Garde*), 1 ♀, Kiukiang (*Pryer, Pratt*), 1 ♂, 1 ♀; FORMOSA (*Hobson*), 1 ♂; at sea 400 miles S.W. of Bombay, 1 ♀. *Exp.* 58-72 millim.

Genus CYLIGRAMMA.

Cyligramma, Boisdu, Faun. Ent. Madag., Lép. p. 109 (1883) *Type.* *latona*.

Proboscis fully developed; palpi upturned, the 2nd joint reaching to vertex of head and rather broadly scaled, the 3rd nearly as long as the 2nd and slender; frons smooth with slight tuft of hair above; eyes large, round; antennæ of male minutely ciliated; thorax clothed with hair only and without crests; all the tibiæ spined and smoothly scaled; abdomen clothed with rough hair at base but without crests. Fore wing triangular, the costa highly arched towards apex which is rounded, the termen nearly straight, crenulate; vein 3 from near lower angle of cell; 4, 5 from angle; 6 from upper angle; 7, 8, 9 stalked and closely approximated to the costa; veins 10, 11 very much attenuated and almost obsolete. Hind wing with the cell about one-third length of wing; vein 2 from near angle; 3, 4, 5 from angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

- A. Wings with the subterminal line not incurved above and below middle *latona*.
- B. Wing with the subterminal line incurved above and below middle.
 - a. Fore wing with the postmedial band angled outwards below costa.
 - a'. Wings with the postmedial band well defined and whitish especially in female *magus*.
 - b'. Wings with the postmedial band indistinct in both sexes *duplex*.

- b.* Fore wing with the postmedial band not angled outwards below costa.
- a*¹. Wings with yellowish irroration on terminal area.
- a*². Wings with the subterminal line indistinct and defined on outer side by slight black striæ *simplex.*
- b*². Wings with the subterminal line distinct, strongly defined on outer side by black-brown *fluctuosa.*
- b*¹. Wings with grey irroration on terminal area.
- a*². Fore wing with the discoidal stigma distinct, the postmedial line slightly excurved round its outer edge *limacina.*
- b*². Fore wing with the discoidal stigma obsolescent, the postmedial line straight and oblique *amblyops.*
- c*¹. Wings without pale irroration on terminal area.
- a*². Wings with broad pale band beyond the postmedial line *disturbans.*
- b*². Wings with narrow yellow band beyond the postmedial line *joa.*

7423. *Cyligramma latona*.

Noctua latona, Cram. Pap. Exot. i. p. 20, pl. 13. f. B (1779).

Noctua troglodyta, Fabr. Ent. Syst. iii. 2. p. 14 (1793).

Head, thorax and abdomen dark reddish brown; neck with

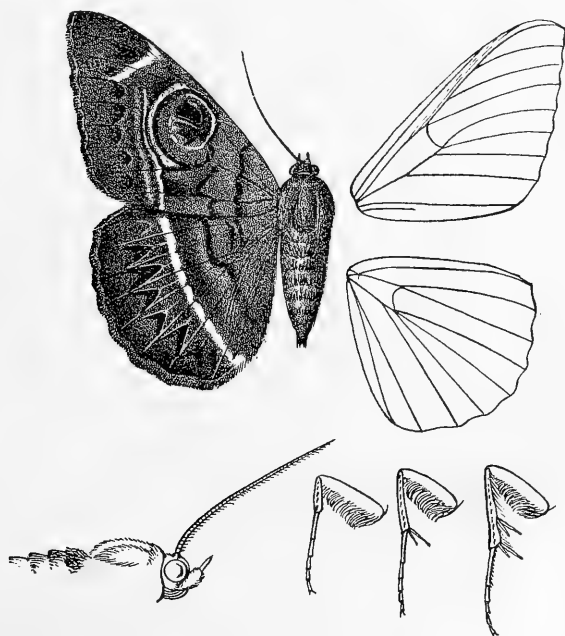


Fig. 51.—*Cyligramma latona*, ♂. 1.

yellow ring; pectus, legs, and ventral surface of abdomen greyish

brown. Fore wing reddish brown with a slight greyish gloss, the terminal area irrorated with ochreous except towards costa; ante-medial line black, curved, slightly angled outwards in submedian fold and on vein 1; a large whorl-shaped discoidal mark, in, beyond, and below the cell, defined by black, its head brown defined by two white striæ and with a black patch above it, its inner part irrorated with yellow, defined on inner side by yellow and on outer by a fine blue line, its outer and lower parts rufous, the mark defined on outer side by a greyish ochreous band and with a black streak below it on vein 2 with a dentate black line from its inner edge to inner margin; a narrow yellow postmedial band from vein 6 to inner margin with yellow irroration beyond it; an oblique yellow bar from below costa to vein 6, with the slight waved yellow subterminal line defined on outer side by a series of black spots from it to vein 1, then bent inwards to inner margin at the postmedial band. Hind wing reddish brown, the postmedial area irrorated with yellow; an indistinct discoidal lunule defined by blackish; an oblique black medial line incurved at vein 2; a rather narrow oblique yellow postmedial band, with slight yellow streaks beyond it on the veins to the fine very highly dentate yellow subterminal line, its angles filled in with black-brown on outer side. Underside of both wings brownish grey to the post-medial yellow band, narrow yellowish discoidal lunules defined by dark brown, the postmedial band broader; fore wing with subterminal series of dentate yellow marks from the oblique bar to vein 1; hind wing with the dentate yellow marks forming the subterminal line strong.

Hab. GOLD COAST (*Hales*), 2 ♂; S. NIGERIA, Lagos, Olokemeji (*Dudgeon*), 1 ♂, Old Calabar (*Cockburn*, *Crompton*), 2 ♂, 1 ♀, Oban Distr. (*Talbot*), 1 ♂, 1 ♀; N. NIGERIA, Bauchi Prov., Kabwir (*Fox*), 1 ♂, Badeggi (*Macfie*), 1 ♂; CONGO (*Curror*), 1 ♂, Kambove (*Neave*), 2 ♀, Lualaba R. (*Neave*), 1 ♀; SHARI-TCHAD PROTECTORATE, Dar Runga (*Kumm*), 1 ♂; SUDAN, White Nile, 1 ♀, Gabt el Meghahid (*Dunn*), 1 ♂; ABYSSINIA, Zegi Tsana (*Degen*), 2 ♀, Ardaga (*Drake-Brockman*), 1 ♂, Suakin (*Carpenter*), 1 ♀; BR. E. AFRICA, Maka (*Gregory*), 1 ♂, Masailand (*Hunter*), 1 ♂, Teita Hills (*Hannington*), 1 ♀, Munisu (*Ld. Delamere*), 1 ♂, Molo R. (*Ford*), 1 ♀, Machakos (*Crawshay*), 1 ♂, Eb Urru (*Betton*), 1 ♂, Athi-ya-Mawe (*Betton*), 1 ♀; UGANDA, Mesozi (*Doggett*), 1 ♀, Kigoma (*Christy*), 1 ♂, Port Ugowe (*Johnston*), 1 ♂; GERM. E. AFRICA, Usangu (*Neave*), 1 ♀; BR. C. AFRICA, Mandala (*de Jersey*), 1 ♂, Lake Nyasa (*Simmons*), 1 ♂, Zomba (*Johnston*, *Cloume*, *Manning*), 2 ♂, 4 ♀, Chiromo (*de Jersey*, *Neave*), 1 ♂, 1 ♀, Blantyre (*Ambruster*), 1 ♂, Up. Shiré Valley (*Neave*), 1 ♀, Ft. Mangoche (*Neave*), 1 ♂; N.E. RHODESIA, Zambesi Valley (*Marshall*), 1 ♀, Fife Distr. (*Harger*), 1 ♀; MASHONALANI, Mazoe (*Marshall*), 1 ♀; LORENÇO MARQUES, Delagoa Bay (*Kenrick*), 1 ♂; BECHUANALAND, Lake N'gami (*Lugard*), 1 ♀; TRANSVAAL (*Ross*), 1 ♀, Piet Retief (*Mercer*), 1 ♂, Pietersburg (*Grant*), 1 ♀, Warmberg (*Janse*), 1 ♀; NATAL (*Laing*), 1 ♀, Durban (*Gueinzius*);

1 ♂, 2 ♀; BASUTOLAND, Maseru (*Crawshay*), 1 ♀; CAPE COLONY (*Burke*), 1 ♀, Fort Beaufort (*Hazelton*), 1 ♂; MADAGASCAR; COMORO Is., Mayotta (*Meade-Waldo*), 1 ♂, Aldabra (*Meade-Waldo*), 1 ♂; ADEN (*Yerbury, Bartlett, Nicholl*), 2 ♂, 2 ♀. *Exp.* 74-90 millim.

7424. *Cyligramma magus*. (Plate CCV. figs. 6 ♂, 7 ♀.)

Erebus magus, Guén. Icon. Règn. Anim., Ins. p. 521 (1842).

Cyligramma goudotii, Guen. Noct. iii. p. 189 (1852).

Cyligramma buchholzi, Plotz, Stett. Ent. Zeit. xl. p. 301 (1880).

♂. Head, thorax, and abdomen grey-brown, the neck with ochreous ring; pectus and ventral surface of abdomen greyer. Fore wing grey-brown suffused in parts with fuscous, the outer half of medial area black-brown; antemedial line black, excurved below costa, then oblique and angled inwards on median nervure; an inverted comma-shaped discoidal mark with trilobate head, defined by black on inner side, its outer side and the head defined by silvery blue, its centre fuscous, the tail irrorated with yellow and with yellow line on inner side, a black patch beyond the tail and rufous beyond and below the discoidal mark; medial line black, arising below costa, excurved round the discoidal mark and angled inwards below it on vein 2, then oblique and sinuous to inner margin, its excurved part defined on outer side by ochreous grey; a diffused oblique ochreous grey postmedial band, oblique from costa to vein 6, then double, the area beyond it irrorated with ochreous except towards costa; subterminal line black, waved, interrupted, arising below costa, bent outwards below veins 7 and 4 and incurved at veins 5 and 2. Hind wing grey-brown; an oblique elliptical discoidal mark defined by fuscous; medial line fuscous, excurved at middle; an oblique ochreous grey postmedial band defined on inner side by black-brown and diffused on outer side, whitish at costa, then double, the area beyond it irrorated with ochreous; subterminal line formed by a series of black spots defined on inner side by white striæ, oblique from below costa to vein 6, incurved at discal fold, excurved between veins 4 and 3, then again incurved. Under-side of both wings grey to the postmedial band, then grey-brown, narrow whitish discoidal lunules defined by fuscous; fore wing with oblique creamy white postmedial bar from costa to vein 6 and band from vein 6 to inner margin, and subterminal series of minute whitish lunules obsolescent towards costa; hind wing with broad oblique creamy white postmedial band and subterminal series of tridentate spots just beyond it defined on outer side by blackish and excurved between veins 4 and 3.

♀. Fore wing with the oblique bar and band creamy white, narrow and well defined; hind wing with the postmedial band creamy white, narrow and well defined.

Hab. W. AFRICA, 1 ♂; S. NIGERIA, Olokemeji (*Dudgeon*), 1 ♂, Ilesha (*Humfrey*), 2 ♂, 1 ♀; N. NIGERIA, Bauchi Prov., Panyam

(Fox), 1 ♀, Minna (*Macfie*), 1 ♀, Zungeru (*Macfie*), 1 ♀, Idda (*Macfie*), 1 ♀; CONGO, Kambove (*Neave*), 1 ♂, 1 ♀, Lualaba R. (*Yale-Massey*), 1 ♀; ANGOLA, San Salvadori, 1 ♂; UGANDA, Mpuma (*Bruce*), 1 ♀, Wadelai (*Emin Pasha*), 1 ♀, Sanji Budu (*Christy*), 1 ♂, Ruwenzori (*Wollaston*), 2 ♂, 2 ♀; GERM. E. AFRICA, Tanganyika (*Coode-Hore*), 1 ♂, 1 ♀, Ruaha Valley (*Neave*), 1 ♀; C. BR. AFRICA, M'lanji Boma (*Neave*), 1 ♀, Chiromo (*Neave*), 1 ♀, 1 ♂, Zomba (*Johnston*), 2 ♂, 1 ♀; MASHONALAND, Salisbury (*Marshall*), 2 ♀, Umtali (*Marshall*), 1 ♀; MADAGASCAR. *Exp.* 66-84 millim

7425. *Cyligramma duplex*. (Plate CCV. fig. 8.)

Cyligramma duplex, Guen. Noct. iii. p. 187, pl. 20, f. 2 (1852).

Head, thorax, and abdomen grey-brown; neck with yellow ring. Fore wing grey-brown, the terminal area darker and irrorated with ochreous scales; antemedial line dark, waved, incurved below vein 1; an inverted comma-shaped discoidal mark with somewhat trilobate head, defined by black and its outer side and head by silvery bluish white, its head filled in with fuscous, its tail with black irrorated with yellow and with yellow line before it, a black patch beyond it; medial line black, arising below the costa, excurved round the discoidal mark and angled inwards below it on vein 2, then waved to inner margin; a faint yellowish oblique postmedial bar irrorated with brown from costa to vein 6 and traces of an oblique band from vein 6 to inner margin with black-brown shade before it; an interrupted waved black subterminal line defined on inner side by yellow striæ, excurved below veins 7 and 4 and incurved at veins 5 and 2. Hind wing grey-brown, the terminal half darker and irrorated with ochreous scales; an oblique discoidal lunule defined by fuscous; medial line blackish, excurved at middle; a faint double yellowish postmedial band defined on inner side by black-brown suffusion; a subterminal series of black-brown marks defined on inner side by yellow, excurved below veins 7 and 4 and incurved at discal fold. Underside of both wings grey-brown to the rather maculate yellow postmedial band and subterminal series of yellow rather tridentate spots, lunulate on fore wing wedge-shaped on hind wing.

Hab. MADAGASCAR, Fianarantsoa (*Cowan*), 1 ♂, 1 ♀, Betsileo (*Bartlett*), 1 ♀. *Exp.* 86-100 millim.

7426. *Cyligramma simplex*. (Plate CCVIII. fig. 5.)

Cyligramma simplex, Grünberg, Sitz. Ges. Naturf. Berlin, 1910, pp. 159, 177, f. 10.

Head, thorax, and abdomen grey-brown. Fore wing grey-brown, the terminal area irrorated with ochreous; a waved fuscous antemedial line; an inverted comma-shaped discoidal mark with trilobate head, defined on inner side by black and on outer and the head by silvery blue, its tail irrorated with yellow and with yellow line on inner side, a black patch beyond it with golden rufous

beyond it and the head of the discoidal mark; medial line black, arising below costa, excurved round the discoidal mark and angled inwards below it on vein 2, then oblique and sinuous to inner margin; an indistinct diffused fuscous postmedial line dilated into a wedge-shaped mark below costa; a subterminal series of small blackish spots defined on inner side by ochreous strigæ, excurved below veins 7 and 4 and incurved below veins 5 and 3. Hind wing grey-brown, the terminal area irrorated with ochreous; an oblique elliptical discoidal spot defined by fuscous; a fuscous medial line excurved at middle; an oblique ochreous postmedial line defined on each side by fuscous, and a slight waved ochreous subterminal line defined on outer side by black marks and angled outwards below veins 7 and 4. Underside of fore wing with postmedial series of small ochreous spots forming an oblique bar from costa to vein 6 and obsolescent towards inner margin, and subterminal series of minute spots except towards costa and inner margin; hind wing with faint oblique fuscous postmedial line with traces of minute ochreous spots on its outer side and subterminal series of small rather tridentate yellowish lunules slightly incurved at discal fold.

Hab. S. NIGERIA, Iagos, Agige (*Dudgeon*), 1 ♀, Ilesha (*Humfrey*), 1 ♂; N. NIGERIA, Zungeru (*Macfie*), 2 ♂, 3 ♀; UGANDA, Victoria Nyanza. *Eap.* ♂ 66, ♀ 74 millim.

7427. *Cyligramma fluctuosa*.

Noctua fluctuosa, Drury, Ill. Exot. Ins. ii. p. 24, pl. 14. f. 1 (1773); Saalm. Lep. Madag. p. 452, f. 210.

Cyligramma rudikinea, Wlk. xiv. 1311 (1857).

♂. Head dark brown, thorax and abdomen dark greyish brown, the neck with yellow ring. Fore wing grey-brown, the basal area suffused with fuscous, the terminal area suffused with fuscous and irrorated with grey; antemedial line blackish, waved, bent inwards to costa and angled outwards on vein 1; an inverted comma-shaped discoidal mark with trilobate head, defined by black and its outer side and head by silvery blue, its tail irrorated with yellow and with a black patch beyond it with golden rufous beyond it and the head of the discoidal mark; medial line black, arising from costa, obliquely excurved round the discoidal mark and angled inwards below it on vein 2, then waved to inner margin; postmedial line very indistinct, oblique and slightly excurved beyond the discoidal mark, defined on inner side by a wedge-shaped black patch from costa to discal fold and a quadrate patch from vein 2 to inner margin; a waved black-brown subterminal line slightly defined on inner side by yellow, obliquely excurved below costa and vein 4, incurved at veins 5 and 2 and bent inwards to inner margin. Hind wing fuscous brown to the postmedial line, the postmedial area grey-brown irrorated with dark brown, the terminal area fuscous brown irrorated with grey; a narrow discoidal lunule

defined by fuscous; medial line fuscous, excurved at middle; post-medial line double, oblique, filled in with greyish; subterminal line black-brown defined on inner side by ochreous, waved, excurved below veins 7 and 4 and incurved at veins 5 and 2. Underside of both wings grey-brown; fore wing with indistinct oblique pale postmedial bar from costa to vein 6, oblique line from vein 6 to inner margin, and subterminal series of pale lunules from below vein 7 to submedian fold; hind wing with indistinct dark medial and postmedial lines and subterminal series of yellowish white lunules incurved at discal fold.

♀. Both wings with the basal area paler and with the post-medial line filled in with yellowish, on hind wing defined on inner side by fuscous brown; underside of fore wing with distinct oblique yellow postmedial bar and maculate line.

Ab. 1. Both sexes darker especially the male which has a slight purplish gloss; underside of male purplish fuscous brown, of female rather paler, the hind wing with yellow postmedial line giving off slight streaks in the interspaces, the subterminal spots tridentate.—Comoro Is.

Hab. ? SIERRA LEONE; BR. E. AFRICA, Teita (*Wray*), 1 ♀, Masailand (*Hunter*), 1 ♀, Taru (*Betton*), 1 ♂, 1 ♀; MAURITIUS; COMORO Is., Mayotta (*Meade-Waldo*), 2 ♂, 2 ♀. *Exp.* 76–88 millim.

7428. *Cyligramma limacina*.

Erebis limacina, Guér. Icon. Règn. Anim., Ins. p. 520, pl. 89. f. 2 (1829).

Cyligramma argillosa, Guen. Noct. iii. p. 186 (1852).

Cyligramma acutior, Guen. Noct. iii. p. 187 (1852).

Brucas bisignata, Wlk. xiv. 1255 (1857).

Cyligramma importuna, Kef. Jahrb. Ak. Erfurt, vi. p. 15, f. 7 (1870).

Cyligramma interlecta, Kef. Jahrb. Ak. Erfurt, vi. p. 16, f. 8 (1870).

♂. Head, thorax, and abdomen dark brown, the neck with yellow ring. Fore wing dark brown with a faint purplish gloss, the terminal area irrorated with grey scales, the outer half of medial area suffused with black-brown; antemedial line indistinct, dark, waved, bent inwards to costa; an inverted comma-shaped discoidal mark with somewhat trilobate head, defined by black and its outer side and head by silvery blue, its tail irrorated with yellow and with a black-brown patch beyond it and a rufous patch beyond the head; medial line black, arising below costa, obliquely excurved round the discoidal stigma and angled inwards below it on vein 2, then waved to inner margin; an indistinct oblique greyish postmedial line, bent outwards to costa and slightly excurved beyond the discoidal stigma; subterminal line slight, black-brown, waved, excurved below veins 7 and 4 and incurved below veins 6 and 3. Hind wing dark brown, the postmedial area irrorated with greyish ochreous; an indistinct discoidal lunule defined by fuscous and medial line excurved at middle; postmedial line oblique, double filled in with greyish;

subterminal line slight, black-brown defined on inner side by greyish, waved, excurved below veins 7 and 4 and incurved below veins 6 and 3. Underside of both wings fuscous brown with subterminal series of small yellow lunules, on fore wing incurved below veins 5 and 3 and on hind wing at discal fold.

♀. Both wings paler especially the postmedial area, the postmedial line of fore wing more distinct and filled in with greyish, the subterminal line of both wings much more distinct; underside of both wings greyish brown; fore wing with oblique maculate postmedial bar from costa to vein 6 and line from vein 6 to inner margin; hind wing with the subterminal spots larger and somewhat tridentate.

Ab. 1. Fore wing with the postmedial area strongly suffused with grey.

Hab. SIERRA LEONE (*Morgan*), 1 ♂, 2 ♀, Batkanu (*FitzGerald*), 1 ♂; S. NIGERIA, Lagos, Ondo (*Powell*), 1 ♂, Onitsha, 2 ♂, Lokoja (*Christy*), 1 ♂, Ilesha (*Humfrey*), 1 ♀; CAMEROONS (*Johnston*), 1 ♀; CONGO, Katanga, Kambove (*Neave*), 1 ♂, Lualaba R. (*Neave*), 1 ♂; ANGOLA, Kibokolo do Zombo (*Lewis*), 1 ♀; SUDAN, White Nile, Gabt el Meghahid (*Dunn*), 1 ♂; ABYSSINIA (*Degen*), 1 ♂, Atbara R. (*Gerrard*), 1 ♂; BR. E. AFRICA, Thika-Shika (*Gregory*), 1 ♂; UGANDA, Wadelai (*Emin Pasha*), 1 ♂, Ruwenzori (*Wollaston*), 1 ♀; BR. C. AFRICA, Nyasaland (*de Jersey, Simons*), 2 ♂, Zomba (*Johnston*), 2 ♂, 1 ♀, Chiromo (*Neave*), 4 ♂, 2 ♀, Karonga (*Neave*), 1 ♀, Ruo Valley (*Neave*), 1 ♀, Mlanja Boma (*Neave*), 1 ♂, 1 ♀; NATAL, Durban (*Gooch, Whyte*), 1 ♂, 1 ♀; MADAGASCAR, 1 ♂ type *bisignata*, Betsileo (*Bartlett*), 1 ♂, 1 ♀. *Exp.* 62-92 millim.

7429. *Cyligramma amblyops*. (Plato CCVIII. fig. 1.)

Cyligramma amblyops, Mab. Bull. Soc. Ent. Fr. 1891, p. xc.

Head, thorax, and abdomen dark reddish brown, the neck with yellow ring. Fore wing brown tinged with grey and with dark red-brown suffusion before the postmedial line; antemedial line indistinct, dark, sinuous; an indistinct inverted comma-shaped discoidal mark with trilobate head, defined by dark brown, its tail filled in with grey-white hair, some dull reddish brown beyond it defined by the brown medial line which arises below the costa, excurved and waved round the discoidal mark and bent inwards below it to vein 2, then oblique and sinuous to inner margin; postmedial line oblique, grey and with slight grey irroration beyond it extending except below costa to the slight waved brown subterminal line defined on inner side by white striæ, excurved below costa, at middle and above inner margin and incurved at vein 5 and below vein 3. Hind wing dark reddish brown; a faint dark medial line excurved at middle; an oblique white postmedial line defined on inner side by black-brown; a more or less interrupted sinuous white subterminal line defined on outer side by black-brown, strongly excurved below costa and

at middle and incurved at discal fold. Underside of both wings brown with subterminal series of small white lunules slightly incurved at discal fold and not extending below submedian fold.

Ab. 1. Wings much greyer.—N. Rhodesia.

Hab. SIERRA LEONE (*Mitford*), 1 ♀; GOLD COAST, Accra, 1 ♂, Ashanti, Obuassi (*Graham*), 1 ♂; CAMEROONS, 1 ♂; UGANDA, Entebbe (*Minchin*), 1 ♂; N.E. RHODESIA, Kolungwisi Valley (*Neave*), 1 ♀. *Exp.* 98–110 millim.

7430. *Cyligramma disturbans*. (Plate CCVIII. figs. 4 ♂, 9 ♀.)

Nyctipao disturbans, Wlk. xiv. 1307 (1858), ♀.

Nyctipao conturbans, Wlk. xiv. 1308 (1858), ♂.

Cyligramma raboudou, Lucas, Ann. Sci. Nat. (5) xv. no. 22, p. 3 (1872).

Cyligramma concors, Mab. C.R. Ent. Soc. Belg. xxv. p. lix (1881).

Cyligramma consiliatrix, Saalm. Lep. Madag. p. 456, f. 127 (1891).

♀. Head and tegulæ dark reddish brown, the neck with yellow ring; thorax and abdomen brown tinged with grey. Fore wing dark reddish brown; the basal area brown tinged with grey, bounded by the oblique black antemedial line; an inverted comma-shaped discoidal mark with trilobate head and dilated at tail, defined by black and irrorated with yellow except the central part of head which is rufous with some brown suffusion; medial line black defined on outer side by rufous and on inner side also beyond the head of the discoidal mark, oblique towards costa, excurved and waved beyond the head of the discoidal mark, below vein 2 oblique to vein 1 where it is angled inwards, then excurved; an oblique yellow postmedial band irrorated with brown, attenuated and bent outwards at costa, its outer edge angled outwards above vein 6 and below veins 4 and 1; the termen slightly irrorated with grey. Hind wing dark reddish brown; an indistinct oblique dark medial line; an oblique yellow postmedial band, irrorated with brown and with faint brown line on it on inner half; a slightly sinuous yellow subterminal line defined on outer side by black-brown, arising below costa from the postmedial band, angled outwards below vein 6 and strongly below vein 4; the termen slightly irrorated with grey with faint yellow marks before it in the interspaces between veins 6 and 1. Underside of both wings greyish brown to the yellow postmedial band, the terminal area dark brown with a slight purplish gloss; fore wing with the postmedial band interrupted at vein 6 where an oblique yellow wedge-shaped bar from costa terminates, a subterminal series of small yellow lunulate spots except towards costa and inner margin; hind wing with the subterminal line represented by a series of tridentate yellow spots.

♂. Fore wing with the postmedial band represented by a slight oblique whitish line with purple-grey suffusion beyond it, the outer

edge of the band represented by a faint yellowish line with series of small black spots on its outer edge, the area beyond the band with diffused pale dentate marks in the interspaces; underside of both wings with the postmedial band absent.

Ab. 1. consiliatrix, ♂. Fore wing with the whole area beyond the postmedial line greyish ochreous brown except the costal area towards apex, the outer edge of the postmedial band represented by a faint brown line with black points on it; hind wing with the postmedial band brownish ochreous, whitish at costa.

Hab. MADAGASCAR, 3 ♂, 4 ♀ type and type *conturbans*, Ellongo (*Bartlett*), 1 ♂, Antananarivo (*Toy*), 1 ♂, Betsileo (*Cowan*), 1 ♀. *Exp.* 93–110 millim.

7431. *Cyligramma joa*. (Plate CCVIII. fig. 6.)

Cyligramma joa, Boisd. Faun. Ent. Madag. & Maur. p. 110, pl. 16. f. 2 (1833).

♀. Head and tegulae dark reddish brown, the neck with yellow ring; thorax and abdomen brown with a greyish tinge. Fore wing brown with a greyish tinge especially on basal area; antemedial line indistinct, interrupted and sinuous from costa to submedian fold where it is angled outwards, then oblique to inner margin; some rufous suffusion in and below end of cell; an inverted comma-shaped discoidal mark with trilobate head and very attenuate tail, the head defined by yellow scales, the tail defined by black and irrorated with yellow scales, a quadrate black-brown patch beyond it defined on outer side by the black medial line which arises below costa, oblique to vein 5, excurved round the head of discoidal stigma, then oblique to submedian fold close to the antemedial line and erect to inner margin, the area between it and the antemedial line filled in with black below the submedian fold; a narrow oblique yellow postmedial band defined on inner side by black-brown and bent outwards just below costa; a subterminal series of small trifid black-brown marks defined on inner side by slight yellowish points, oblique to discal fold and excurved at middle. Hind wing grey-brown, the terminal half darker; an indistinct dark antemedial line excurved at middle; a narrow oblique yellow postmedial band ending at tornus towards which it is attenuate; a subterminal series of slight yellow lunules defined on outer side by small black-brown spots, except towards costa and tornus, incurved at discal fold and excurved at middle. Underside of fore wing with subterminal series of small lunulate yellow spots, of hind wing with larger rather tridentate spots.

Ab. 1. Both wings with the postmedial yellow band reduced and tinged with brown.

Hab. MADAGASCAR (*Geale, Wailley*), 2 ♀, Ellongo (*Bartlett*), 1 ♀. *Exp.* 84–110 millim.

Genus **HEXAMITOPTERA.**

<i>Pæcilopectera</i> , Pag. J.B. Nass. Ver. xxxviii. p. 35 (1885), nec	Type.
<i>Pæcilloptera</i> , Germ. Hem. 1818	<i>lavinda</i> .
<i>Hexamitoptera</i> , Pag. J.B. Nass. Ver. xxxviii. p. 180 (1885) ...	<i>lavinda</i> .

Proboscis fully developed; palpi upturned, the second joint reaching to vertex of head and broadly scaled in front; the 3rd long and moderately scaled in front; frons smooth, with tuft of hair above; eyes large, round; antennæ of male ciliated; thorax clothed with long hair mixed with scales, the pro- and metathorax with spreading crests; all the tibiæ spined, the fore tibiæ fringed with long hair on outer side, the mid and hind tibiæ moderately fringed with hair; abdomen without crests. Fore wing with the costa nearly straight towards apex which is produced and acute, the termen evenly curved and not crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the termen strongly angled at vein 4; the cell about one-third length of wing; veins 3, 4, from angle of cell; 5 fully developed from just above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

7432. **Hexamitoptera lavinda.**

Pæcilopectera lavinda, Pag. J.B. Nass. Verh. xxxviii. p. 35, pl. ii. f. 5 (1885).

Head and tegulæ rufous; palpi fulvous yellow; antennæ dark brown; thorax greenish grey mixed with brownish; pectus and legs fulvous yellow, the tarsi brownish with pale rings; abdomen yellow, the base of dorsum greenish grey irrorated with black, lateral and sublateral black points except at extremity. Fore wing whitish suffused with greenish blue, the costal area to postmedial line, the cell and the inner area obliquely from beyond lower angle of cell to inner margin near base thickly irrorated with brownish; a faint curved antemedial line; a slight pale point in middle of cell and elliptical brown discoidal spot defined by white with a yellowish streak beyond it; medial line represented by an oblique brown striga from costa and two slight striæ at discal fold; an oblique brown line from apex to middle of inner margin, rather diffused on outer side and crossed by the slight waved postmedial line defined on outer side by bluish white, excurved from costa to below vein 7 and oblique beyond the line from apex; a faint pale subterminal line bent outwards and waved on inner side above the apical line and ending at tornus; a series of slight brown and whitish lunules before termen; cilia dark brown. Hind wing whitish suffused with greenish blue, the inner margin yellow; a dark discoidal point; an oblique double dark antemedial line with rufous patch beyond it beyond the cell and followed by the dark medial line which is oblique to discal fold, then incurved and reduced to points, a slight rufous mark beyond it in discal fold; a brown patch on costa before the faint waved subterminal line; the terminal area suffused with brownish except towards apex; a series of minute black lunules before termen from apex to the angle at

vein 4 where there is a black spot followed by a striga on termen; a white terminal line; cilia dark brown. Underside of both wings bluish white thickly irrorated with fuscous brown; fore wing with dark discoidal spot with pale centre, medial line excurved beyond the cell, and waved postmedial line defined on outer side by small white spots, the terminal area fuscous brown with oblique whitish mark from apex and diffused bar towards tornus, a slight waved

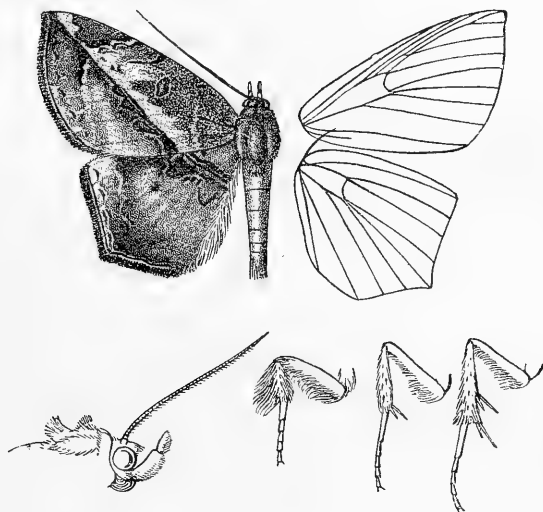


Fig. 52.—*Hexamitoptera lavinda*, ♂. ♀.

line before termen with white points on it; hind wing with the inner area yellow, a double black discoidal bar, sinuous antemedial line excurved beyond the cell, rather diffused medial line excurved beyond the cell, waved postmedial line defined on outer side by white lunules and waved subterminal line, the terminal area whitish on inner half, a series of slight dark lunules before termen.

Hab. BORNEO, Kuching (*Shelford*), 1 ♂, 1 ♀; NIAS I. *Exp.* ♂ 52, ♀ 70 millim.

Genus ENTOMOGRAMMA.

<i>Entomogramma</i> , Guen. Noct. iii. p. 203 (1852)	Type. <i>fautrix</i> .
<i>Taramina</i> , Moore, Lep. Ceyl. iii. p. 153 (1884)	<i>torsa</i> .

Proboscis fully developed; palpi upturned, the 2nd joint reaching to vertex of head and rather broadly scaled, the 3rd rather long; frons smooth, with tuft of hair above; eyes large, round; antennæ of male typically with cilia and bristles; thorax clothed with hair mixed with some scales and without crests; all the tibiæ spined, the fore tibiæ fringed with hair on outer side; abdomen

without crests. Fore wing with the costa highly arched towards apex which is produced and acute, the termen evenly curved, crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the cell about one-third length of wing; veins 3, 4 from angle; 5 fully developed from just above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

SECT. I. (*Taramina*.) Antennæ of male pectinate with long uniserrate branches on lower side to two-thirds length, the upper side with fasciculate cilia; the base of shaft with ridge of thick scales above contorted at extremity; mid tibiæ dilated with fold and tuft of long hair; hind tibiæ and the spurs fringed with long hair.

7433. *Entomogramma torsa*.

Entomogramma torsa, Guen. Noct. iii. p. 204 (1852); Moore, Lep. Ceyl. iii. p. 153, pl. 166. f. 2; Hmps. Moths Ind. ii. p. 533.

Entomogramma squamicornis, Feld. Reis. Nov. pl. 115. f. 3 (1874).

Entomogramma vanua, Feld. Reis. Nov. pl. 115. f. 4 (1874).

♂. Head black-brown slightly tinged with grey; tegulæ rufous; thorax and abdomen ochreous brown; hind tibiæ and the tarsi fuscous above; pectus and ventral surface of abdomen whitish. Fore wing ochreous brown suffused with red-brown; a rufous

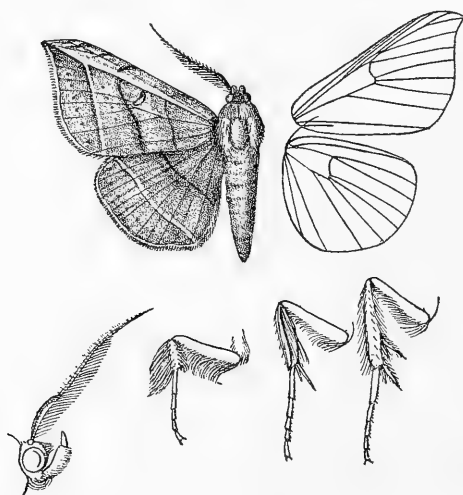


Fig. 53.—*Entomogramma torsa*, ♂. 1.

streak in upper part of cell from near base and another from upper angle to apex, beyond the subterminal line defined by dark brown below; antemedial line slight, brown, excurved below costa, then oblique; an elliptical blackish discoidal annulus; medial line slight, brown, strongly excurved below costa, then oblique; post-

medial line with oblique blackish striga from costa, then slight, inwardly oblique and waved; subterminal line with oblique brown striga from costa, below the apical streak red-brown defined on inner side by whitish and inwardly oblique; a faint waved line before termen; a fine rufous terminal line. Hind wing ochreous brown suffused with red-brown; an oblique dark brown ante-medial line; a faint medial series of minute dark lunules, angled outwards at discal and submedian folds; subterminal line double filled in with yellowish, almost straight; a faint waved brown line before termen and fine rufous terminal line. Underside of both wings yellowish, irrorated and in parts suffused with brown; fore wing with dark spot in middle of cell and elliptical discoidal annulus; hind wing with slight discoidal lunule; both wings with slightly waved medial line excurved below costa of fore wing, curved on hind wing, curved waved postmedial line, double, slightly waved and rather diffused subterminal line, and series of strigæ before termen; fore wing with oblique dark streak below apex and both wings with some dark suffusion below middle of terminal area.

♀. Thorax, abdomen, and wing grey-brown with the lines distinct.

Ab. 1. *squamicornis*, ♂. Thorax, abdomen, and wings grey-brown with the lines distinct.

Ab. 2. *vanua*. Fore wing with the subcostal streak almost obsolete except beyond the subterminal line.

Hab. PUNJAB, Masuri, 1 ♀; ASSAM (*Badgley*), 1 ♂; BOMBAY, 1 ♂, 3 ♀, Kanara (*Ward*), 1 ♂; MADRAS, Nilgiris (*Hampson*), 3 ♂, 1 ♀; CEYLON (*Templeton*), 1 ♂; JAVA (*Horsfield*), 1 ♂, 2 ♀ type; FIJI, type† ♂ *vanua* with the antennæ of some other species stuck on in Coll. Rothschild. *Exp.* 42-58 millim.

SECT. II. Antennæ of male serrate with long bristles and fasciculate cilia, the shaft thickened at base; fore tibiæ without tufts of hair, the mid and hind tibiæ smoothly scaled.

7434. *Entomogramma pardus*.

Entomogramma pardus, Guen. Noct. iii. p. 205 (1852).

Hypopyra anteponens, Wlk. xiv. 1323 (1857).

Remigia venusta, Wlk. xxxiii. 1011 (1865).

Entomogramma panthera, Feld. Reis. Nov. pl. 115. f. 6 (1874).

Entomogramma pardalis, Saalm. Lep. Madag. p. 459, f. 222 (1891).

Head and tegulæ red-brown; palpi fuscous, yellowish in front at base; thorax ochreous mixed with grey-white; pectus and the hair on coxæ and femora yellow, the fore tibiæ red-brown, the mid and hind tibiæ and the tarsi fuscous; abdomen yellow, the basal segments dorsally grey irrorated with fuscous, lateral and sublateral series of small black spots. Fore wing ochreous grey thickly irrorated and striated with brown, the terminal area suffused with red-brown except at apex, the costal edge red-brown; ante-medial line blackish, angled outwards below costa, then oblique;

a minute black spot at upper angle of cell and larger spot at lower angle; medial line fuscous brown, oblique from costa to discal fold where it is met by an oblique yellow streak from apex defined below by brown, then inwardly oblique and double; postmedial line oblique and dark from costa to the apical streak, then yellow defined on outer side by brown and nearly straight to tornus;

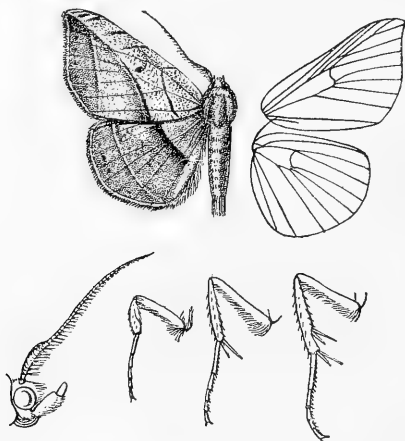


Fig. 54.—*Entomogramma pardus*, ♂. †.

traces of a series of dark points before termen; a fine yellow line at base of cilia. Hind wing greyish ochreous thickly irrorated and striated with brown, the terminal area suffused with red-brown, the costal area to beyond middle and the inner margin yellow; a double oblique fuscous antemedial line and traces of three waved medial lines except on the yellow areas; subterminal line yellow, almost straight from costa before apex to tornus; the veins of terminal area with very slight pale streaks; a fine yellow line at base of cilia which are greyish at tips. Underside of both wings yellow; fore wing with dark point in middle of cell and slight discoidal lunule; hind wing with discoidal point; both wings with slight punctiform curved medial line, postmedial series of small dark spots excurved beyond the cells, double subterminal maculate line, and series of points before termen.

Ab. 1. *venusta*. Wings much more strongly striated with brown.

Ab. 2. *pardalis*. Wings more uniform brownish.

Ab. 3. Similar but fore wing with large black discoidal lunule.

Hab. SIERRA LEONE (*Foxcroft, Morgan*), 2 ♂, 2 ♀ type *venusta*; S. NIGERIA, Jebba (*Christy*), 1 ♀, Sapele (*Sampson*), 1 ♀; N. ANGOLA, Kibokolo do Zombo (*Lewis*), 1 ♀; BR. E. AFRICA, Mombasa (*de la Garde*), 1 ♂, Machakos (*Crawshaw*), 1 ♀, Athi Valley

(*Crawshaw*), 1 ♂, Kilima'njaro (*Hannington*), 1 ♂ GERM. E. AFRICA, Mt. Rungwe (*Neave*), 1 ♀; BR. C. AFRICA, Mlanji Boma (*Neave*), 2 ♂, 1 ♀, Mombera Distr. (*Neave*), 1 ♀, Fort Maguire (*Neave*), 1 ♀, Zomba (*Johnston*), 1 ♂, 1 ♀, Lower Shiré Valley (*Neave*), 1 ♂, 1 ♀; N.E. RHODESIA, Luangwa R. (*Neave*), 2 ♂, 2 ♀; MASHONALAND, Salisbury (*Marshall*), 5 ♂, 4 ♀; LORENÇO MARQUES, Delagoa Bay (*Junod*), 2 ♀; NATAL, Malvern (*Marshall*), 3 ♂, 1 ♀, Durban (*Gueinzius*, *Burrows*, *Leigh*), 1 ♂, 4 ♀; CAPE COLONY (*Sir A. Smith*), 1 ♂, 1 ♀ type *anteponens*; MADAGASCAR; COMORO Is., Mayotta (*Meadc-Waldo*), 3 ♂, 1 ♀. *Exp.* 40–54 millim.

SECT. III. Antennæ of male with fasciculate cilia.

A. (*Entomogramma*.) Mid tibiæ of male dilated with a fold containing a tuft of long hair, the hind tibiæ fringed with long hair.

7435. *Entomogramma fautrix*.

Entomogramma fautrix, Guen. Noct. iii. p. 204 (1852); Feld. Reis. Nov. pl. 115. f. 5; Humpsn. Moths Ind. ii. p. 532.

Head blackish brown; tegulæ rufous; thorax and abdomen grey-brown; pectus, femora, and fore tibiæ pale rufous, the mid

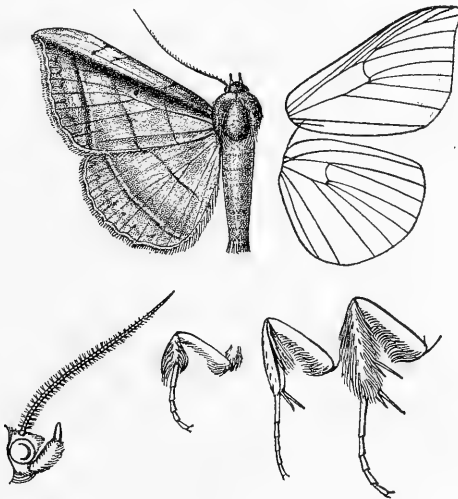


Fig. 55.—*Entomogramma fautrix*, ♂. 1.

and hind tibiæ and the tarsi fuscous; ventral surface of abdomen pale grey. Fore wing bluish grey suffused with red-brown; a red-brown fascia from base through upper part of cell to apex, slightly defined above by yellowish suffusion; antemedial line brown,

excurved below costa, then oblique; a small black discoidal spot; medial line brown, bent outwards below costa, then oblique; post-medial line brown, excurved below costa, then minutely waved, bent inwards to vein 1, and with some whitish suffusion beyond it at middle; subterminal line red-brown slightly defined on inner side by whitish, straight, from the apical streak to inner margin; a slightly waved brown line before termen; a fine brown terminal line; cilia with yellowish lines at base and near tips. Hind wing bluish grey suffused with red-brown; an oblique brown antemedial line; a slight waved medial line, excurved at discal and submedian folds; a straight red-brown subterminal line slightly defined on inner side by whitish; a series of brown points before termen and a fine yellow terminal line. Underside of both wings fuscous brown variegated in parts with grey; fore wing with dark spot in middle of cell and double discoidal bar; hind wing with discoidal bar; both wings with curved medial line, waved postmedial line with yellow spots before and beyond it from costa to vein 3, and very indistinct double slightly waved subterminal line with some greyish beyond it except at middle; fore wing with apical yellow patch.

Ab. 1. Thorax, abdomen, and wings paler grey-brown.

Hab. C. CHINA, Foochau (*Leech*), 2 ♀; PUNJAB, Masuri (*Hearsey*), 1 ♀, Kangra (*Hocking*), 1 ♂, 1 ♀; SIKKIM, 1 ♂, 2 ♀; ASSAM, Khâsis (*Watson*), 1 ♂, 2 ♀, Silhet (*Stainsforth*), 1 ♂, 2 ♀ type; MADRAS, Malabar, 1 ♂, Nilgiris (*Hampson*), 1 ♂; BURMA, Hsipaw (*Watson*), 1 ♂; ANDAMANS, 1 ♂, 1 ♀. *Exp.* 56-64 millim.

B. Mid tibiæ of male without fold and tuft of hair; hind tibiæ smoothly scaled.

7436. *Entomogramma mediocris*.

Entomogramma mediocris, Wlk. xxxiii. 949 (1865); *Hmps.* Moths Ind. ii. p. 552.

Remigia decora, Wlk. xxxiii. 1015 (1865).

Remigia antica, Wlk. xxxiii. 1016 (1865).

♂. Head and tegulæ rufous; thorax ochreous yellow; mid tibiæ and tarsi dark brown above; abdomen yellow. Fore wing yellow tinged with rufous and faintly striated with brown, the terminal area suffused with rufous except at apex; traces of a rufous antemedial line, excurved below costa, then oblique; a slight rufous discoidal lunule; a very faint medial line, oblique from costa to vein 6, then inwardly oblique; postmedial line very faint, rufous, oblique from costa to below vein 7, then inwardly oblique and waved, met at discal fold by an oblique rufous streak from apex; subterminal line rufous, angled outwards below costa, and below the apical streak double filled in with rufous; a series of brown points before termen; a fine yellow terminal line. Hind wing yellow tinged with rufous, the terminal area suffused with rufous; faint traces of an oblique antemedial line and of a waved medial line excurved at discal and submedian folds; subterminal

line double, rufous filled in with yellow, almost straight; a series of faint brown points before termen; a fine yellow terminal line. Underside of both wings yellow; fore wing with slight discoidal

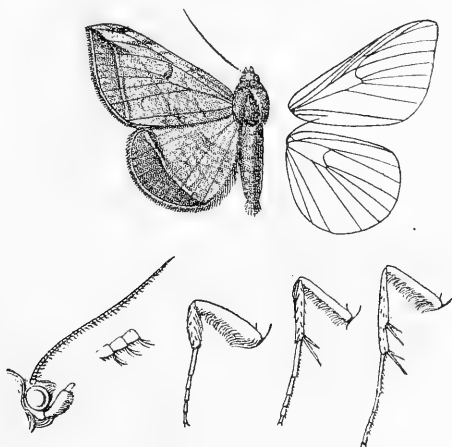


Fig. 56.—*Entomogramma medioeris*, ♂. 1.

lunule, hind wing with discoidal point; both wings with curved postmedial series of points, subterminal series of striae double except on inner areas, and on fore wing diffused below costa and at middle, and series of striae before termen.

♀. Thorax pale grey; fore wing pale grey striated with red-brown, the outer part of medial area and the terminal area except at apex suffused with red-brown, the antemedial, medial, and postmedial lines distinct; hind wing grey irrorated and striated with brown, the costal area to beyond middle and the inner margin yellow; the antemedial and medial lines distinct; the underside with the postmedial series of spots and the double subterminal line much more prominent.

Hab. INDIA, 1 ♀ type; BOMBAY, 1 ♀; MADRAS, Coimbatore (Walhouse), 1 ♂, 1 ♀ types *decora* and *antica*. *Exp.* 44–50 millim.

Genus ENMONODIA.

	Type
<i>Enmonodia</i> , Wlk. xiv. 1332 (1858)	<i>pudens</i> .
<i>Macula</i> , Wlk. xxxiii. 1096 (1865)	<i>unistrigata</i> .
<i>Pyramarista</i> , Kirby, A. M. N. H. (6) xviii. p. 391 (1896)	<i>rufescens</i> .

Proboscis fully developed; palpi upturned, the 2nd joint reaching to vertex of head and rather broadly scaled, the 3rd long; frons smooth with tuft of hair above; eyes large, round; antennae of male typically minutely fasciculate; thorax clothed with hair only and without crests; all the tibiae spined, the fore tibiae fringed with long hair on outer side, the hind tibiae and tarsi of male typically fringed with very long hair; abdomen with some rough hair at base but without crests. Fore wing with the costa slightly arched towards apex which is more or less produced and acute, the termen evenly curved and not

crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the cell about one-third length of wing; veins 3, 4 from angle; 5 fully developed from just above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

SECT. I. Antennæ of male pectinate on outer side with short branches ending in a bristle, minutely fasciculate on inner side and towards apex; fore legs with tuft of long hair from joint of coxæ and femora; fore wing with the apex strongly produced.

7437. *Enmonodia megalesia*.

Hypopyra megalesia, Mab. Ann. Soc. Ent. Fr. (5) ix. p. 346 (1879).

Hypopyra bosei, Saalm. Ber. Senck. Ges. 1880, p. 279; id. Lep. Madag. p. 457, f. 126.

♂. Head grey-brown, the back of head fulvous; palpi yellow,

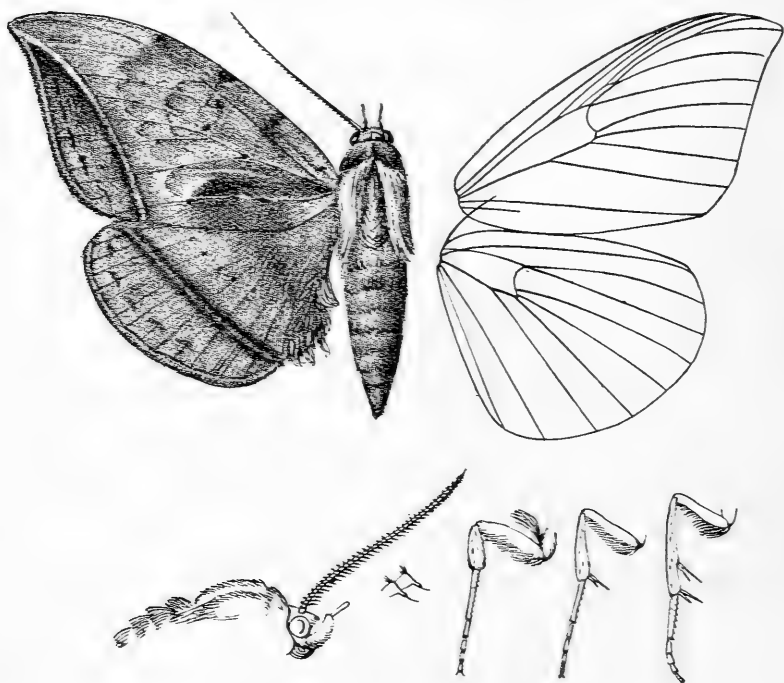


Fig. 57.—*Enmonodia megalesia*, ♂. 1.

the 3rd joint grey-brown, the frons with slight yellowish lateral spots; tegulæ fulvous; thorax ochreous yellow; pectus ochreous yellow, the tibiæ and tarsi grey-brown; abdomen pale yellow. Fore wing pale ochreous yellow, the basal half of inner area tinged

with rufous; a subbasal brown point below costa; antemedial line represented by a brown striga from costa and black points on median nervure and vein 1; a slight red-brown discoidal lunule; medial line with fuscous spot at costa, then very faint, red-brown, excurved below costa, oblique and waved below vein 5; postmedial line with slight brown spot at costa, then faint and waved, excurved below costa, then oblique and with black points on veins 5 to 1; a double obliquely incurved brown line filled in with yellow from apex to inner margin well before tornus; a series of brown striæ before termen and a brown terminal line from the double line to vein 2; cilia red-brown except towards tornus; the costa tinged with brown towards apex. Hind wing pale ochreous yellow; a faint rufous antemedial shade; traces of a waved medial line with a series of black points at the veins; a double brown postmedial line filled in with yellow; a slight waved subterminal line and fine line before termen; cilia red-brown. Underside of both wings yellow, the terminal area irrorated with fuscous; fore wing with brown spot in middle of cell and discoidal lunule; hind wing with discoidal point; both wings with curved medial line, curved waved postmedial line, maculate subterminal line, and series of slight lunules before termen.

♀. Fore wing without the rufous shade on basal inner area or the black points on ante- and postmedial lines, the antemedial line continued to vein 1, the waved medial and postmedial lines distinct; hind wing with the waved medial line more distinct.

Hab. MADAGASCAR, 1 ♂, Betsileo (*Cowan*), 1 ♂, Forêt d'Ambre (*Meade-Waldo*), 1 ♀. *Exp.* 98-130 millim. Type† in Coll. Mabille.

SECT. II. Antennæ of male serrate and fasciculate; fore wing with the apex moderately produced.

A. Abdomen of male with dorsal tufts of hair towards extremity, the anal tuft large.

a. Abdomen of male with the anal tuft entirely crimson.

a¹. Hind wing with the postmedial line waved; female with the ground-colour red-brown..... *occidentalis*.

b¹. Hind wing with the postmedial line not waved; female with the ground-colour ochreous tinged with red-brown..... *capensis*.

b. Abdomen of male with the anal tuft tipped with brown.

a¹. Hind wing with the costal and inner areas crimson.

a². Fore wing with the antemedial line oblique and not waved..... *malgassica*.

b². Fore wing with the antemedial line waved.

a³. Fore wing with greenish patch on postmedial costal area; both wings largely suffused with purplish grey..... *plumbefusa*.

b³. Both wings ochreous suffused with red-brown and thickly irrorated with brown..... *pulverulenta*.

b⁴. Hind wing with the costal and inner areas yellow faintly tinged with scarlet..... *endoxantha*.

7438. *Enmonodia occidentalis*, n. sp. (Plate CCVIII. figs. 2 ♂, 3 ♀.)

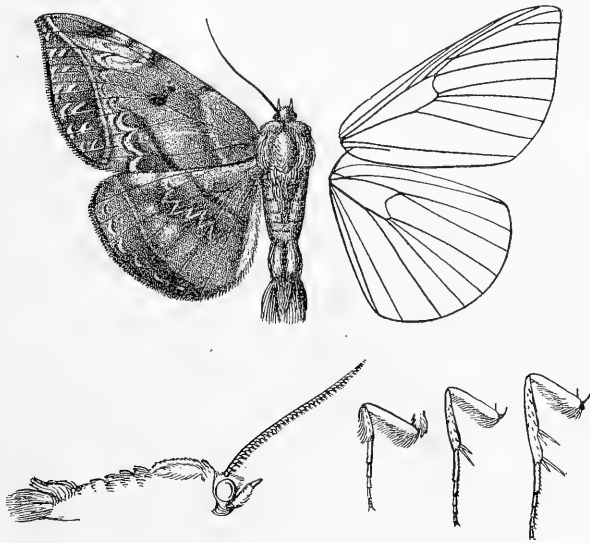
♂. Head brown mixed with grey, the palpi at base and the 2nd joint in front and behind crimson; antennæ blackish, the shaft white above towards base; tegulæ red-brown; thorax brown mixed with grey; pectus and femora scarlet, the tibiæ and tarsi grey-brown; abdomen scarlet, the basal segments dorsally brown. Fore wing red-brown tinged with purplish grey and with slight dark irroration; traces of a pale subbasal line from costa to submedian fold, bent inwards in cell; a very indistinct, waved, dark antemedial line defined on inner side by slight ochreous marks, excurred below costa and cell; three dark brown discoidal points, the lowest conjoined to a small spot beyond lower angle of cell and all defined by whitish; medial line represented by a blackish spot on costa and oblique line from submedian fold to inner margin; a rather bidentate pale greenish patch below postmedial part of costa, crossed by the postmedial dark line which is oblique and obsolescent from costa to below vein 7, then indistinctly double, waved, inwardly oblique and filled in with greyish towards inner margin, defined on outer side by purple from vein 4 to inner margin; a double incurved line filled in by greyish from apex to inner margin just before tornus, some fuscous suffusion beyond it below middle; a series of double oblique dark marks filled in by greyish before termen; a slight greyish terminal line. Hind wing red-brown tinged with purplish grey, the terminal area suffused with blackish brown, the costal area to beyond middle and the inner margin scarlet; a dark discoidal point and oblique antemedial line except on the scarlet areas; a faint waved medial line except on the scarlet areas, with a series of blue-white points on it, excurred at discal and submedian folds; a faint minutely waved pale postmedial line from costa to inner margin just above tornus and traces of a pale subterminal line from costa to vein 4. Underside of both wings scarlet, the terminal areas irrorated with black; fore wing with dark spot in middle of cell and slight discoidal lunule; hind wing with discoidal point; both wings with curved medial line, curved slightly waved postmedial line, subterminal line curved on hind wing and slight waved line before termen.

♀. Fore wing red-brown irrorated and striated with black, the antemedial line distinct, bent outwards below costa, then oblique; the discoidal marks absent; the postmedial patch below costa very faint and pale, no purple beyond the postmedial line or blackish on terminal area; hind wing red-brown, except the scarlet areas, irrorated with black, the medial line hardly traceable and without white points on it, the postmedial line brown faintly defined on outer side by grey, more distinctly waved, the subterminal line more distinct and dark.

Hab. SIERRA LEONE (*Cator*), 1 ♂ type; S. NIGERIA, Ilesha (*Humfrey*), 2 ♂, 2 ♀; UGANDA, Entebbe (*Minchin*), 1 ♂; BR. C. AFRICA, Mlangi Boma (*Neave*), 1 ♂, 1 ♀. *Esp.* 70-76 millim.

7439. *Enmonodia capensis*.*Hypopyra capensis*, Herr.-Schäff. Aussereur. Schmett. ff. 121-122 (1850).

♂. Head and thorax brown mixed with grey, the tegulæ bright red-brown; palpi at base and the 2nd joint in front and behind scarlet; pectus and femora scarlet; legs grey-brown; abdomen scarlet, the basal segments dorsally grey-brown. Fore wing red-brown, the costal area tinged with grey to beyond middle; an indistinct antemedial line slightly defined on inner side by grey, excurved below costa, then oblique; two chocolate-brown discoidal spots defined by grey, the spot at lower angle of cell larger; medial line represented by a blackish spot at costa and oblique red-brown line from vein 4 to inner margin, the area beyond it suffused with

Fig. 58.—*Enmonodia capensis*, ♂. 1.

deep red-brown to termen; a rather bifid patch of greenish-grey suffusion below postmedial part of costa, crossed by the postmedial line, which is oblique and obsolescent from costa to below vein 7, then indistinctly double, waved, inwardly oblique, and filled in with grey towards inner margin; a double incurved red-brown line filled in with greyish from apex to inner margin before tornus; a series of oblique grey bars defined by brown before termen; cilia chocolate-brown. Hind wing red-brown tinged with purplish grey, the terminal area with wedge-shaped patch of chocolate-brown suffusion from discal fold to tornus, the costal area to beyond

middle and inner margin scarlet; an oblique brown antemedial line and faint dentate medial line with series of grey-white points on it except on the scarlet areas; an indistinct obliquely curved postmedial line from costa to inner margin above tornus; a slight waved grey subterminal line from costa to vein 2; cilia chocolate-brown. Underside of both wings scarlet, the terminal areas slightly irrorated with black; fore wing with small dark spots in middle of cell and on discocellulars; hind wing with discoidal point; both wings with curved medial line, curved slightly waved postmedial line, subterminal line curved on hind wing, and slight waved line before termen.

♀. Thorax, base of abdomen, and wings ochreous tinged with rufous; fore wing with the discoidal spots reduced to points, the postmedial line reduced to a series of black points on the veins with faint line beyond it below vein 3; hind wing with series of blackish points on the medial line instead of the white points, the postmedial line more distinct and pale, the subterminal line with series of black points on it, a faint red-brown shade on terminal area below discal fold.

Hab. LORENÇO MARQUES, Delagoa Bay (*Junod*), 1 ♀; ZULULAND (*Angas*), 1 ♂; NATAL, Durban (*Gueinzius*, *Gooch*, *Trimen*, *Leigh*), 4 ♂, 2 ♀; CAPE COLONY (*Sir A. Smith*), 1 ♂. *Exp.* 72-82 millim.

*7440. **Enmonodia malgassica.** (Plate CCVIII. figs. 7 ♂, 8 ♀.)

Hypopyra malgassica, Mab. Bull. Soc. Zool. Fr. iii. p. 93 (1879).

♂. Head and tegulæ bright rufous; thorax grey; palpi in front, pectus and femora scarlet; tibiæ and tarsi grey-brown; abdomen scarlet with some grey hair at base of dorsum, the anal tuft brown at tip. Fore wing brownish suffused with grey and irrorated with fuscous; antemedial line slight, dark defined on inner side by grey, forming a spot at costa, slightly excurved below costa, then oblique; a dark spot at middle of costa; an oblique dark line from vein 3 beyond the cell to inner margin; postmedial line forming a dark spot at costa, then slight, dark defined on outer side by grey, slightly bent outwards below costa, then oblique, waved; a double obliquely incurved dark line from apex to inner margin before tornus; some brown suffusion at middle of terminal area and a series of slight dark spots before termen. Hind wing brown suffused with grey and slightly irrorated with fuscous, the terminal area browner; costal area pale scarlet to the subterminal line; the inner margin scarlet; a dark antemedial line; a faint waved dark medial line defined on outer side by grey; a slightly curved dark subterminal line, and series of slight dark spots before termen. Underside scarlet; fore wing with small dark spots in middle of cell and on discocellulars, an oblique medial line, curved somewhat maculate postmedial line, oblique subterminal line, and series of dark points before termen except on inner area; hind wing with slight dark discoidal striga, slight curved medial line, curved some-

what maculate postmedial line, curved subterminal line, and series of dark striæ before termen.

♀. Thorax tinged with flesh-colour; fore wing flesh-red, the lines slight, the ante- and postmedial lines not forming spots at costa, the subterminal line filled in with yellow; hind wing flesh-red; the underside with the markings less distinct.

Hab. MADAGASCAR, type † ♂, ♀ in Coll. Mabille. *Exp.* ♂ 78, ♀ 90 millim.

7441. *Enmonodia plumbefusa*, n. sp. (Plate CCIX. fig. 1.)

♂. Head and thorax grey tinged with brown, the tegulæ bright red-brown; antennæ blackish; palpi scarlet at base and in front; pectus and femora scarlet, the tibiæ and tarsi grey-brown; abdomen crimson, the basal segments dorsally grey-brown, the anal tuft brown at tips. Fore wing brownish grey, the postmedial area except towards costa and the terminal area mostly suffused with chocolate-brown with a silvery leaden gloss; antemedial line brown, excurved below costa, then oblique and slightly waved; two minute black-brown discoidal spots defined by grey; medial line represented by a blackish spot on costa and an oblique brown line from vein 3 to inner margin; postmedial line oblique and obsolescent from costa to below vein 7, then double filled in with grey, waved, inwardly oblique and with white points on the inner side; a double brown line filled in with grey, obliquely incurved from apex to inner margin before tornus; a series of oblique silvery and brown bars before termen; cilia chocolate-brown. Hind wing with the basal area grey-brown, the rest of wing chocolate-brown glossed with silvery blue except on a wedge-shaped patch from discal fold to tornus, the costal area to beyond middle and the inner margin crimson; a dark discoidal point, oblique antemedial line and dentate grey medial line except on the crimson areas; a very indistinct oblique dark postmedial line from costa to tornus and a subterminal series of minute triangular silvery-blue spots. Underside of both wings scarlet, the terminal area of fore wing and costal area of hind wing irrorated with black; fore wing with small dark spot in middle of cell and discoidal spot; hind wing with discoidal spot; both wings with indistinct medial line, curved postmedial line, subterminal line curved on hind wing and slight waved line before termen.

Hab. UGANDA, Ruwenzori (*Wollaston*), 1 ♂; NATAL, Malvern (*Marshall*), 2 ♂ type, Durban (*Gooch*), 1 ♂. *Exp.* 70-76 millim.

7442. *Enmonodia pulverulenta*, n. sp. (Plate CCIX. fig. 2.)

♂. Head and thorax brown mixed with grey, the tegulæ bright red-brown; palpi at base and the 2nd joint in front and behind scarlet; pectus and femora scarlet, the tibiæ and tarsi grey-brown; abdomen scarlet, the basal segments dorsally red-brown irrorated

with blackish, the anal tuft brown at tip. Fore wing greyish ochreous suffused with red-brown and irrorated with dark brown; antemedial line indistinct, brown, bent outwards below costa, then oblique; three minute blackish discoidal spots defined by some white scales; medial line represented by a blackish spot on costa and double oblique brown line from vein 2 to inner margin; a very faint pale bidentate mark below postmedial part of costa; postmedial line very indistinct, double, waved and inwardly oblique from vein 6 to inner margin; a double obliquely incurved red-brown line filled in with greyish from apex to inner margin before tornus; a series of indistinct oblique brown bars before termen; cilia red-brown. Hind wing red-brown tinged with grey, the costal area to beyond middle and inner margin scarlet; an oblique double brown antemedial line and an indistinct waved medial line excurved at discal and submedian folds except on the scarlet areas; an obliquely curved, very slightly waved postmedial brown line from costa to inner margin above tornus and a series of brown striæ before termen. Underside of both wings scarlet, the terminal area of fore wing and costal area of hind wing irrorated with brown; fore wing with small dark spots in middle of cell and on discocellulars; hind wing with discoidal point; both wings with medial and postmedial lines excurved beyond cell of fore wing, curved on hind wing, subterminal line curved on hind wing, and series of slight striæ before termen.

♀. Wings rather more ochreous and less grey; fore wing with the postmedial line reduced to a series of black points bent inwards to costa; hind wing with the postmedial line yellowish and not waved.

Ab. 1. Fore wing with rather large black spot at lower angle of cell, sometimes rather bidentate.

Hab. GOLD COAST, Ashanti, Obuasi (*Graham*), 1 ♀; S. NIGERIA, Lagos, Ebute Meta (*Boag*), 2 ♀, Bende (*Sampson*), 1 ♂, Onitsha, 1 ♀, Ilesha (*Humfrey*), 1 ♂; CONGO, Katanga, Kambove (*Neave*), 1 ♂, Lualaba R. (*Neave*), 1 ♂ type; UGANDA, Gondokoro (*Emin Pasha*), 1 ♂; BR. E. AFRICA, Kiliman'jaro (*Jackson, Hannington*), 2 ♀; BR. C. AFRICA, Zomba (*Crawshay*), 1 ♀. *Exp.* 64-78 millim.

7443. *Enmonodia endoxantha*, n. sp. (Plate CCIX. fig. 7.)

♂. Head and thorax grey-white tinged with brown, the tegulæ bright red-brown; palpi at base and the 2nd joint in front and behind scarlet; antennæ brown; pectus ochreous white; coxæ and femora scarlet, the tibiæ and tarsi grey-brown; abdomen yellow, the dorsum whitish towards base, the hair towards extremity of dorsum scarlet, the anal tuft scarlet, brown at tip. Fore wing whitish tinged with flesh-colour and irrorated with brown, the terminal area suffused with red-brown; a faint brown antemedial line, excurved below costa, then oblique; two minute black-brown discoidal spots and a larger spot at lower angle of cell, all defined by white scales; medial line represented by a

blackish spot on costa and a slight oblique line from submedian fold to inner margin, the postmedial line by a faint oblique shade from costa, then by a series of black points on the veins; a double obliquely incurved red-brown line filled in with yellowish from apex to inner margin before tornus; a series of oblique brown striæ before termen. Hind wing whitish tinged with flesh-colour and irrorated with brown, the terminal area suffused with red-brown, the costal area to beyond middle and the inner margin yellow tinged with scarlet; an oblique brown antemedial line and traces of a waved medial line except on the yellow areas; postmedial line double, red-brown filled in with yellowish, oblique from costa to inner margin just above tornus; a subterminal series of blackish points. Underside of both wings yellow faintly tinged with scarlet and irrorated and striated with brown except in cell and on inner areas; fore wing with small dark spot in middle of cell and discoidal lunule; hind wing with discoidal point; both wings with medial and postmedial lines, excurved beyond the cell on fore wing, evenly curved on hind wing, subterminal line curved on hind wing, and series of striæ before termen.

♀. Abdomen without any scarlet; wings grey-white; fore wing without the spot at lower angle of cell, a double waved line beyond the postmedial points from vein 6 to inner margin; hind wing without scarlet tinge on costal and inner areas, the waved medial line more distinct.

Ab. 1. Wings pale ochreous and with hardly any brown irroration.

Ab. 2. Both wings strongly tinged with pale bluish green.

Hab. S. NIGERIA, Ilesha (*Hunfrey*), 2 ♀; CONGO, Katanga, Kambove (*Neave*), 2 ♀; GERM. E. AFRICA, Usagara (*Neave*), 2 ♀; N.E. RHODESIA, Loangwa R. (*Neave*), 1 ♂, 2 ♀ type; NATAL, Malvern (*Marshall*), 1 ♀, Verulam (*Trimen*), 1 ♀. *Exp.* 74-78 millim.

B. (*Pyramarista*.) Abdomen of male without dorsal tufts of hair, the anal tuft small.

7444. *Enmonodia rufescens*.

Pyramarista rufescens, Kirby, A. M. N. H. (6) xviii. p. 391 (1896).

♂. Head and tegulæ chocolate-brown; thorax ochreous; palpi pale scarlet at base; legs grey-brown, the hair on coxæ and femora pale scarlet; abdomen ochreous white tinged with pale scarlet except at base of dorsum. Fore wing pale ochreous tinged with red-brown especially on terminal area; postmedial line with blackish spot on costa, then red-brown and indistinct, bent outwards below costa then oblique; an obliquely curved whitish line from apex to inner margin before tornus defined on inner side by red-brown. Hind wing pale ochreous, the terminal area tinged

with red-brown, the costal area to just below the cell and the inner margin pale pink; an oblique red-brown antemedial line from vein 6 to 1; an oblique red-brown postmedial line defined on

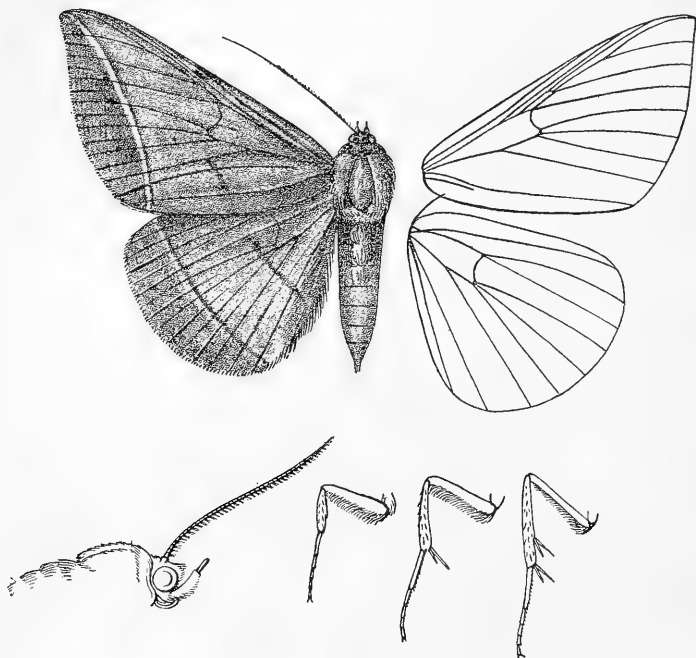


Fig. 59.—*Enmonodia rufescens*, ♂. 1.

outer side by whitish. Underside of both wings suffused with red-brown.

Hab. BR. E. AFRICA (*Ansorge*), 1 ♂ type in bad condition.
Exp. 88 millim.

SECT. III. Antennæ of male minutely fasciculate.

- A. Fore leg of male with erectile tuft of long hair from femoro-tibial joint; fore wing with the apex slightly produced.

7445. *Enmonodia vespertilio*.

Noctua vespertilio, Fabr. Mant. Ins. ii. p. 136 (1787); Hmps. Moths Ind. ii. p. 554.

Hypopyra shiva, Guen. Noct. iii. p. 199 (1852).

Hypopyra extricans, Wlk. xiv. 1328 (1858).

Spiramia hypopyroides, Wlk. Char. Undescr. Lep., Het. p. 51 (1869).

Hypopyra signata, Wlk. Char. Undescr. Lep., Het. p. 90 (1869).

Hypopyra dulcina, Feld. Reis. Nov. pl. 115. f. 10 (1874).

Hypopyra pandia, Feld. Reis. Nov. pl. 115. f. 12 (1874).

Hypopyra distans, Moore, Lep. Atk. p. 169 (1882).

Hypopyra pallida, Moore, P. Z. S. 1883, p. 26; id. Lep. Ceyl. iii. p. 151, pl. 166. ff. 1, 1 a.

♂. Head and tegulæ chocolate-brown; thorax grey-white tinged with brown; palpi with the base and 2nd joint in front scarlet; pectus and hair on coxæ and femora scarlet; legs grey-brown, the spurs ringed with white; abdomen scarlet, the four basal segments dorsally brown. Fore wing greyish suffused with red-brown, the basal and costal areas greyer; antemedial line brown defined on inner side by whitish, double towards inner margin, excurved from costa to vein 1 where it is angled inwards, then again excurved; an inverted comma-shaped discoidal mark,

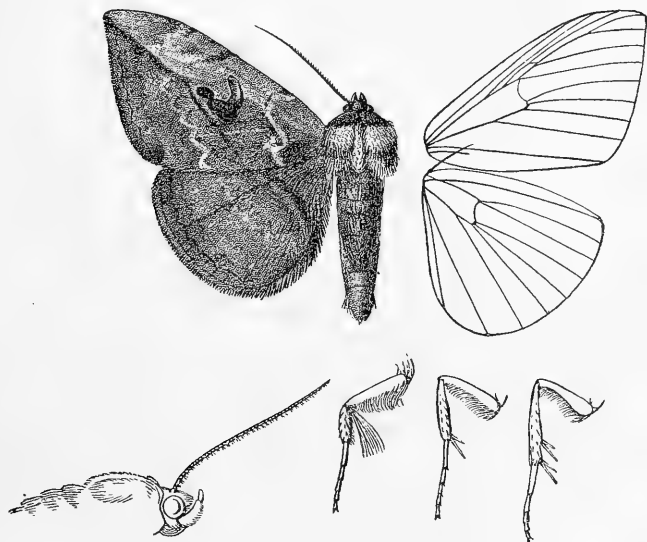


Fig. 60.—*Enmonodia vespertilio*, ♂. †.

its tail represented by a narrow black-brown lunule, its head by three obliquely placed spots all defined by grey; medial line brown, oblique from costa to vein 6, then inwardly oblique and double; postmedial line brown defined on outer side by grey, with oblique dark striga from costa, then slight, waved and with dark points at the veins, oblique to vein 6, then inwardly oblique, met at vein 6 by an oblique brown streak from apex; a slight pale waved sub-terminal line defined on outer side by red-brown; an indistinct double waved brown line before termen, the inner line with brown points in the interspaces; cilia red-brown, yellowish at tips. Hind wing red-brown with greyish at base and before the medial line, the fringe of hair on inner margin scarlet; two rather diffused brown antemedial lines; a slight dentate brown medial line with

dark points at the veins and defined on outer side by grey; a pale waved subterminal line and two faint waved brown lines before termen; cilia dark brown, yellowish at tips. Underside of both wings scarlet; fore wing with brown spot in middle of cell and elliptical discoidal spot with pale centre; hind wing with discoidal point; both wings with indistinctly double medial line, minutely waved postmedial line, double subterminal line, and faint waved line before termen with series of dark points on it.

♀. Abdomen with the four basal segments dorsally whitish tinged with brown; fore wing grey-white slightly tinged with brown, the terminal area rather browner, the discoidal mark almost obsolete, the tail reduced to a faint striga and the head to two minute points; hind wing grey-white faintly tinged with red-brown, the terminal area rather browner.

Ab. 1. *hypopyroides*, ♂. The medial inner area of fore wing and the hind wing much browner; the discoidal mark of fore wing with the spots usually confluent.

Ab. 2. ♂ ♀. Thorax and wings whitish tinged with brownish ochreous and yellow; the discoidal mark of fore wing in male much reduced or almost obsolete.

Ab. 3. *extricans*, ♀. Thorax and wings much whiter; the discoidal mark of fore wing reduced or almost obsolete.

Hab. JAPAN, Tokio (*Maries*), 1 ♂, 1 ♀, Yokohama (*Jonas, Pryer, Manley*), 5 ♂, 4 ♀, Kiushiu, 1 ♂, Satsuma, 1 ♀; N. CHINA (*Fortune*), 1 ♀ type *extricans*, Wei-cheng, 1 ♂; CENTR. CHINA, Shang-hai (*Pryer*), 1 ♀, Kiukiang (*Pryer, Pratt*), 2 ♂; W. CHINA, Kwei-chow, 1 ♂, Wa-shan (*Pratt*), 1 ♀, Chia-kou-ho (*Pratt*), 1 ♂, Ta-chien-lu (*Pratt*), 1 ♂, Moupin (*Kricheldorf*), 1 ♂; PUNJAB, Kulu, Sultanpur (*G. Young*), 1 ♂, Dharmasāla (*Hocking*), 4 ♂, 6 ♀, Kasauli, 1 ♀, Masuri, 2 ♀, Hurripur (*Yerbury*), 1 ♀; SIKHIM (*Lidderdale, Boyle*), 5 ♂, 2 ♀ type *hypopyroides*; ASSAM, Khâsis (*Watson*), 2 ♂, Silhet, 1 ♀; BENGAL, Chota Nagpur, Ranchi (*Irvine*), 1 ♂, 1 ♀; BOMBAY (*Leith*), 1 ♂ type *distans*; MADRAS, Nilgiris (*Hampson*), 2 ♂, 1 ♀; CEYLON (*Templeton*), 2 ♂, 2 ♀ type *pallida*; BURMA, Moulmein (*Clerk*), 1 ♀, Rangoon, 1 ♀, Tenasserim, Dawnat Hills (*de Nicéville*), 1 ♂. *Exp.* 72-90 millim.

- B. (*Enmonodia*.) Hind tibiae and tarsi of male fringed with very long hair; abdomen clothed with long woolly hair below; fore wing with the apex strongly produced; hind wing on underside clothed with long woolly hair except the medial part of costa.

7446. *Enmonodia pudens*.

Hypopyra pudens, Wlk. xiv. 1329 (1858); Hmps. Moths Ind. ii. p. 555.

Enmonodia hypopyroides, Wlk. xiv. 1333 (1858).

Hypopyra grandæva, Feld. Reis. Nov. pl. 115. f. 11 (1874).

Hypopyra persimilis, Moore, P. Z. S. 1877, p. 608.

♂. Head and tegulæ chocolate-brown, the head with pale line

above frons; thorax grey tinged with red-brown; palpi scarlet at base; pectus scarlet; legs dark brown irrorated with grey, the hair on coxæ and femora scarlet; abdomen pale scarlet, the four basal segments dorsally pale grey-brown, the sublateral tufts of hair scarlet, the ventral ridges red-brown. Fore wing grey tinged with brown, the terminal area suffused with red-brown except a patch on postmedial costal area; antemedial line very indistinct, brownish, waved with black points at the veins, bent inwards to costa and with faint brownish patch beyond it in cell and submedian interspace; a faint discoidal bar with two black points on

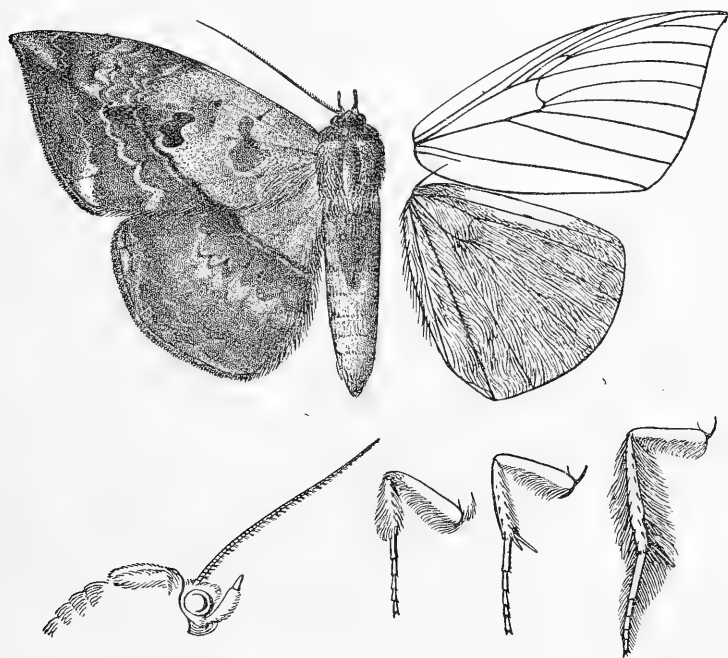


Fig. 61.—*Enmonodia pudens*, ♂. 1.

it and a chocolate-brown patch beyond lower angle of cell, its outer edge indented at veins 4, 3; medial line indistinctly double, brown, excurved and waved to vein 5, then oblique; an indistinct waved curved postmedial line, defined on outer side by grey and with black points at the veins; an oblique brown streak from apex to the medial line at vein 5; an indistinct waved subterminal line and a waved line before termen; some grey suffusion on terminal area above tornus. Hind wing with the basal area grey tinged with red-brown, the rest of wing suffused with red-brown; an oblique brown medial line bounding the grey area; a faint

waved brown postmedial line with black points at the veins, defined on outer side by slight grey suffusion except towards costa; two faint waved subterminal lines. Underside of fore wing dull scarlet mostly suffused with brown, faint dark spots at middle of cell and on discocellulars, a dark medial line excurved below costa, a curved waved postmedial line, a double diffused dark subterminal line, the inner line bent inwards to costa, and a slight waved line before termen; hind wing clothed with dull scarlet hair and with the medial and postmedial lines showing at costa.

♀. Thorax and wings less grey and more tinged with rufous, the latter with the terminal areas suffused with bright red-brown; fore wing with small chocolate-brown spot beyond lower angle of cell with a point below it; underside of hind wing dull scarlet tinged with brown, a dark discoidal spot, curved medial line, and waved postmedial and subterminal lines.

Ab. 1. Fore wing with small wedge-shaped dark mark at lower angle of cell.

Ab. 2. Fore wing with the patch beyond lower angle of cell larger and irregularly rounded.

Ab. 3. Fore wing with the patch beyond lower angle of cell reduced to a small spot.

Ab. 4. Fore wing with the patch beyond lower angle of cell absent.

Ab. 5. *persimilis*. Similar, but fore wing with the subterminal line prominent and white, with some white suffusion beyond it above tornus.

Hab. JAPAN, Tsu-shima (*Holst*), 1 ♂; ANDAMANS (*Stelling*), 3 ♀ type *persimilis*; STRAITS SETTLEMENTS, Penang (*Flower*), 1 ♂, Malacca, Singapore (*Ridley*), 7 ♂, 2 ♀; SUMATRA (*H. O. Forbes*), 1 ♂; BORNEO, Challenger Coll., 1 ♂, Sarawak (*Wallace*), 1 ♂, Kuching (*Shelford*), 1 ♂, 1 ♀, N. Borneo (*Flower*), 1 ♂; NIAS I. (*Schreiber*), 1 ♂, 1 ♀; HAB. IGN., 2 ♂ type and type *hypopyroides*. *Exp.* 96–110 millim.

C. Legs of male normal; fore wing with the apex strongly produced.

a. Fore wing with the medial line oblique and waved from costa to vein 5.

a¹. Fore wing with prominent oblique creamy-white patch from apex; ground-colour violaceous grey.. *lactipex*.

b¹. Fore wing with faint oblique pale shade from apex.

a². Ground-colour grey-white tinged with red-brown *feniseca*.

b². Ground-colour grey-white tinged with olive-brown *ossigera*.

b. Fore wing with the medial line oblique and not waved from costa to vein 5 *spermatophora*.

7447. *Enmonodia lactipex*, n. sp. (Plate CCIX. fig. 10.)

Head and tegulæ chocolate-brown with some crimson behind the eyes and on outer edge of tegulæ; thorax grey-white; palpi

crimson at base; pectus and legs chocolate-brown irrorated with crimson, some crimson below the wings and on coxæ and some white below the fore legs; abdomen crimson, the four basal segments dorsally grey-white irrorated with brown, the ventral surface chocolate-brown. Fore wing violaceous grey, the costal area towards apex and termen suffused with chocolate-brown; a faint waved antemedial line with dark points at the veins, bent inwards to costa; two small chocolate-brown discoidal spots; medial line double, the lines widely separated, excurved and waved from costa to vein 5, then oblique and approximated, a small red-brown spot on outer edge of inner line below vein 6; subterminal line slight, brown defined on outer side by blue-grey and below vein 5 by white, waved; a creamy white apical patch with an oblique brown streak defined above by blue-grey from it to the medial line at vein 5; a faint waved line before termen with dark points in the interspaces with grey points on their outer sides. Hind wing violaceous grey, the termen suffused with chocolate-brown; two oblique brown antemedial lines with the minutely waved medial line just beyond them; a slight crenulate white postmedial line and a faint waved brown subterminal line. Underside of both wings dark brown, the lines defined by scarlet suffusion; fore wing with dark spots at middle of cell and on discocellulars with scarlet patches beyond them, a curved medial line, curved waved postmedial line, and subterminal line bent inwards to costa on the yellowish apical patch; hind wing with dark discoidal spot on a large patch of scarlet suffusion, double medial line and waved postmedial and subterminal lines.

Ab. 1. Fore wing with large elliptical chocolate-brown spot beyond lower angle of cell.

Hab. BORNEO, 1 ♀, Kuching (*Shelford*), 1 ♂, Mt. Dulit (*Hoes*), 1 ♂ type. *Exp.* ♂ 90, ♀ 104 millim.

7448. *Enmonodia feniseca*.

Hypopyra feniseca, Guen. Noct. iii. p. 200 (1854); Hmps. Moths Ind. ii. p. 554.

Head and tegulæ deep chocolate-brown, the vertex of head greyish with a white line above frons; thorax grey-white tinged with red-brown; palpi irrorated with scarlet, scarlet at base; pectus scarlet; legs dark brown irrorated with grey, the hair on coxæ and femora scarlet; abdomen grey tinged with red-brown, the anal tuft and ventral surface scarlet, the latter with dark segmental lines. Fore wing grey tinged with red-brown, the terminal area suffused with red-brown obliquely from apex to middle of inner margin, the costal edge yellowish; antemedial line slight, brownish, waved, with black points at the veins; a dark discoidal striga and dark shade beyond lower angle of cell representing the inverted comma-shaped discoidal mark; medial line brown, double except at costa, oblique and waved to vein 5, inwardly oblique below vein 4; postmedial line very indistinct, dark slightly defined on outer side by greyish, waved and with

black points at the veins, oblique to vein 5, then inwardly oblique; an oblique diffused greyish fascia from apex to the medial line at vein 5; a crenulate subterminal line, brownish on costal half, then white; two waved brown lines before termen. Hind wing grey tinged with red-brown, the terminal half suffused with red-brown; a double brown antemedial line; medial line represented by a series of dark points with grey suffusion beyond it, slightly excurved at middle, then incurved; a faint waved brownish subterminal line and a faint waved line before termen. Underside of

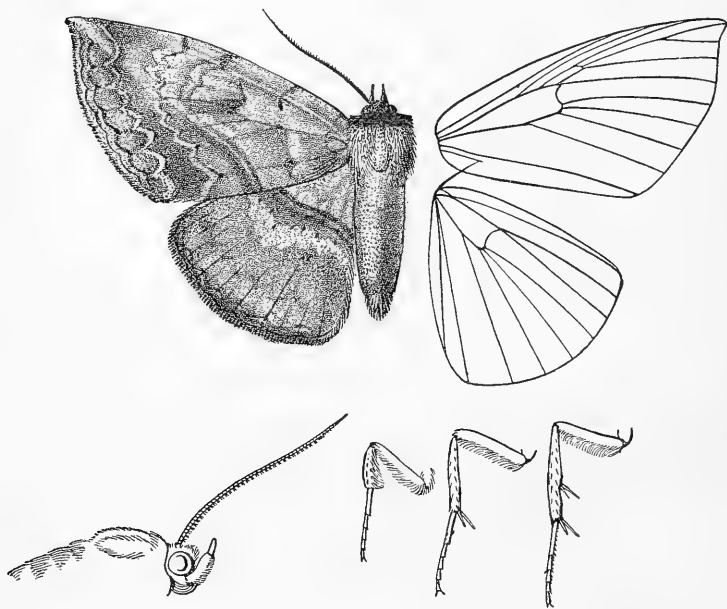


Fig. 62.—*Enmonodia feniseca*, ♂. 1.

both wings scarlet thickly irrorated with fuscous; fore wing with dark spot in middle of cell and discoidal lunule filled in with greyish; hind wing with dark discoidal spot; both wings with curved medial line, waved postmedial line, double waved subterminal line incurved and filled in with fuscous below costa of fore wing, and slight waved subterminal line.

Ab. 1. Fore wing with the subterminal line grey and indistinct.

Ab. 2. Fore wing with two black spots beyond lower angle of cell.

Ab. 3. Wings greyer without red-brown suffusion.

Hab. W. CHINA, Kwei-chow, 1 ♀; PUNJAB, Kulu, Sultanpur (G. Young), 1 ♂, Dharmasala (Hocking), 3 ♂, 1 ♀, Simla (Harford), 4 ♂, 2 ♀, Kasauli, 1 ♀; ASSAM (Badgley), 1 ♂. *Exp.* 89–96 millim.

7449. *Enmonodia ossigera*. (Plate CCIX. fig. 5.)

Hypopyra ossigera, Guen. Noct. iii. p. 201 (1852); Hampsh. Moths Ind. ii. p. 554.

Head and tegulæ chocolate-brown, the latter scarlet at sides, thorax whitish tinged with brown; pectus scarlet; legs grey-brown, the hair on coxæ and femora scarlet; abdomen whitish irrorated with brown and tinged with scarlet towards extremity, the ventral surface scarlet. Fore wing grey-white tinged with olive-brown; antemedial line slight, brown, bent inwards to costa, then slightly waved; a black-brown discoidal lunule confluent with a somewhat bilobate spot beyond lower angle of cell and both slightly defined by white; medial line brown, oblique and sinuous to vein 5, then inwardly oblique; postmedial line slight, waved, oblique to vein 6, then somewhat inwardly oblique; a slight dentate subterminal line defined on outer side by whitish marks; a slight waved brown line before termen; the termen suffused with red-brown except towards tornus; cilia red-brown. Hind wing grey-white tinged with olive-brown, the basal area paler; a slight dark discoidal mark; an oblique double brown antemedial line; a faint dentate medial line with dark points on the veins, defined on outer side by grey; a slight dentate subterminal line defined on outer side by whitish marks; a faint waved brown line before termen; the termen and cilia suffused with red-brown. Underside of both wings scarlet thickly irrorated with fuscous; fore wing with dark spot in middle of cell and discoidal spot; hind wing with discoidal spot; both wings with curved medial line, curved waved postmedial line, double, waved subterminal line, and waved line before termen.

Ab. 1. ♂. Fore wing with the discoidal lunule separate from the spot beyond angle of cell.

Ab. 2. ♂ ♀. Fore wing with the discoidal lunule reduced to two minute spots, the spot beyond lower angle of cell absent.

Ab. 3. ♀. Fore wing without discoidal mark or spot beyond lower angle of cell.

Hab. SIKHIM (*Lidderdale*, Möller), 7 ♂, 2 ♀; STRAITS SETTLEMENTS, Salanga I. (*Müller*), 1 ♂. *Exp.* 64–86 millim.

7450. *Enmonodia spermatophora*, n. sp. (Plate CCIX. fig. 6.)

♂. Head and tegulæ chocolate-brown, the head whitish between antennæ; thorax whitish tinged with red-brown; palpi crimson at base; pectus crimson-red; legs grey-brown, the hair on coxæ and femora crimson; abdomen grey tinged with brown, the anal tuft and ventral surface crimson-red. Fore wing grey suffused with pale red-brown; traces of an antemedial line bent inwards to costa and with black points on median nervure and vein 1; a black-brown discoidal lunule confluent with a bilobate spot beyond

lower angle of cell, both slightly defined by whitish; medial line brown, oblique and straight from costa to vein 5, then inwardly oblique; traces of a curved waved postmedial line slightly defined on outer side by whitish and with dark points on the veins; traces of a waved subterminal line defined on outer side by slight whitish marks; a slight waved brown line before termen; the termen suffused with red-brown; the cilia red-brown. Hind wing grey tinged with red-brown, the basal area somewhat paler; an oblique brown antemedial line; an indistinct waved medial line slightly defined on outer side by whitish and with dark points at the veins; an indistinct waved subterminal line defined on outer side by slight whitish marks and a slight waved brown line before termen; the termen suffused with red-brown; cilia red-brown. Underside of both wings crimson-red thickly irrorated with fuscous; fore wing with dark spot in middle of cell and discoidal spot; hind wing with discoidal point; both wings with curved medial line, waved curved postmedial line, double waved subterminal line and waved line before termen, on fore wing the medial line traversing the discoidal spot.

Hab. ASSAM, Dibrugrah (*Ward*), 1 ♂ type. *Exp.* 80 millim.

SECT. IV. (*Maxula*.) Antennæ of male with long cilia and bristles.

A. Fore femora of male dilated with a tuft of hair at extremity; fore wing with the apex moderately produced.

7451. *Enmonodia unistrigata*.

Hypopyra unistrigata, Guen. Noct. iii. p. 201 (1852); Hmps. Moths Ind. ii. p. 555.

Angerona pæusaria, Wlk. xx, 243 (1860).

Maxula idonea, Wlk. xxxiii. 1096 (1865).

Head and tegulæ red-brown; thorax pale grey tinged with brown; palpi scarlet at base; coxæ and femora clothed with yellow and scarlet hair, the tibiæ and tarsi grey-brown; abdomen yellow, the basal segments dorsally pale grey mixed with brown, the ventral surface tinged with scarlet. Fore wing pale grey irrorated with brown and suffused in parts with red-brown, especially on terminal area except at apex; antemedial line indistinct, brown, slightly waved and with dark points on the veins, bent inwards to costa; a large inverted comma-shaped discoidal red-brown mark slightly defined by grey; medial line red-brown, bent outwards below costa, then oblique, waved and traversing the discoidal mark; postmedial line with oblique brown striga from costa, then indistinct, pale, waved and with dark points on the veins, inwardly oblique below vein 6; subterminal line double, brown filled in with whitish, oblique and straight; an indistinct waved brown line before termen. Hind wing pale grey irrorated with brown and suffused in parts with red-brown especially on terminal area, the inner margin yellow; a slight dark discoidal lunule; an oblique

brown antemedial line; an indistinct waved medial line with blackish points at the veins and faintly defined on outer side by whitish, excurved at discal and submedian folds; an oblique white subterminal line slightly defined on inner side by brown; a slight waved line before termen with dark points at the veins and faintly

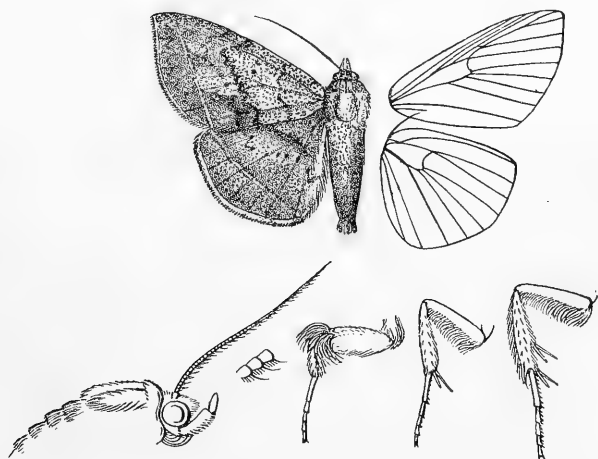


Fig. 63.—*Enmonodia unistrigata*, ♂. 1.

defined on outer side by whitish. Underside of both wings scarlet; fore wing with the costal and terminal areas suffused with brown, a brown spot in middle of cell and discoidal annulus traversed by the medial line, a curved waved postmedial line, diffused double subterminal line and series of points before termen; hind wing with dark discoidal spot, curved antemedial line, waved postmedial line, and straight subterminal line.

Ab. 1. Fore wing with the discoidal spot reduced to three or two minute spots.

Ab. 2. Fore wing with large spot at lower angle of cell with minute spot above it.

Ab. 3. Wings much yellower especially the terminal area of fore wing and the hind wing, and less irrorated with brown.—Sikhim.

Hab. SIKHIM (*Grote, Lidderdale*), 1 ♂, 1 ♀; ASSAM, Silhet (*Stainsforth*), 5 ♂, 5 ♀, types *pæusaria* and *idonea*; BURMA, Moulmein (*Clerk*), 1 ♂, 1 ♀. *Exp.* 54–66 millim.

B. Fore femora of male not dilated and without tuft of hair at extremity; fore wing with the apex slightly produced.

a. Fore wing with the tornal area from below vein 5 greatly excised.

*7452. *Enmonodia contractipennis*.

Enmonodia contractipennis, de Joan. Bull. Soc. Ent. Fr. 1912, p. 334.

♂. Head and tegulae deep chocolate-brown; thorax pale

brownish grey; palpi at base, shoulders and pectus reddish; legs chocolate-brown, the tarsi grey-brown, the hind tibiæ fringed with reddish hair; abdomen pale brownish grey tinged with scarlet except towards base which is irrorated with some blackish scales, the ventral surface pale scarlet. Fore wing pale brownish grey irrorated with blackish, the terminal area suffused with red-brown; a subbasal blackish point below the cell; an antemedial series of four black points on the veins; a slight blackish discoidal striga; a faint diffused medial dark line, excurved beyond the cell, then incurved; a faint oblique brownish striga from costa, then a series of black points on the veins, incurved below vein 5; a pale subterminal

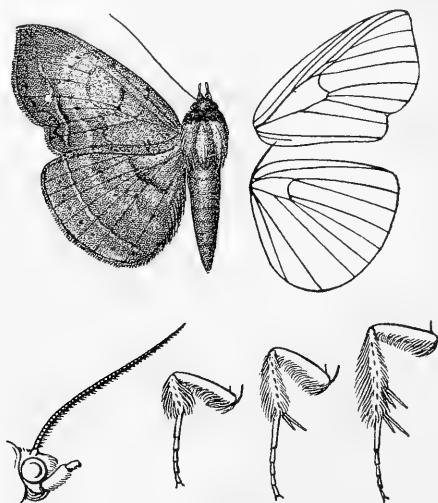


Fig. 64.—*Enmonodia contractipennis*, ♂. $\frac{1}{2}$.

line slightly defined on each side by brown and defined on inner side by black tinged with leaden grey between veins 4 and 2, oblique below vein 7; a series of blackish points before termen and an irregularly waved black line before the excised part of termen. Hind wing grey tinged with red-brown and irrorated with blackish, the hair on inner margin yellowish; a minute blackish discoidal spot and slight medial line; a postmedial series of black points on the veins; a pale subterminal line and series of blackish points before termen; cilia blackish at tips. Underside yellow tinged with red, the costal areas and terminal half irrorated with blackish, both wings with blackish discoidal spots, medial line excurved beyond the cell, waved postmedial line, rather diffused subterminal line, and series of blackish points before termen.

Hab. TONKIN, An-chau, type $\frac{1}{2}$ ♂ in Coll. de Joannis. *Exp.* 52 millim.

- ♂. Fore wing with the tornal area normal.
 a¹. Wings white slightly irrorated with brown; hind wing with the costal area yellow *africana*.
 b¹. Wings grey thickly irrorated with brown; hind wing with the costal area flesh-pink *carneotincta*.

7453. *Enmonodia africana*.

Maxula africana, Kirby, A. M. N. H. (6) xviii. p. 392 (1896).

♂. Head and tegulæ red-brown mixed with ochreous white; thorax ochreous white, palpi crimson at base; pectus and legs ochreous white, the coxæ and femora with pale crimson hair, the tibiæ and tarsi irrorated with fuscous, the fore legs fuscous in front; abdomen yellow, the base of dorsum ochreous white, the ventral surface tinged with crimson. Fore wing ochreous white irrorated with brown, the terminal area tinged with brown, darker below middle; subbasal dark points below costa and cell; antemedial line

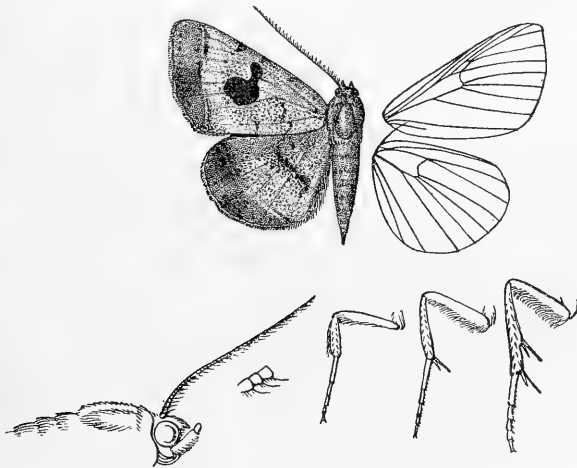


Fig. 65.—*Enmonodia africana*, ♂. 1.

represented by a dark striga from costa and slight sinuous line from cell to inner margin; a very large chocolate-brown spot at lower angle of cell conjoined to a discoidal lunule, both defined by black; medial dark striæ from costa and inner margin; postmedial line represented by a black spot on costa, then a curved series of points on the veins; subterminal line double filled in with whitish, almost straight, with dark points on its edges towards costa; a series of small blackish spots before termen. Hind wing ochreous white irrorated with brown, the terminal area tinged with red-brown, the costal area to beyond middle and the inner margin orange-yellow; a slight dark discoidal lunule; rather diffused medial line with slight points beyond it on the veins except on the yellow areas; subterminal line double, brown filled in with whitish, almost straight, with diffused dark marks on it towards costa; a series of blackish points before termen. Underside of both wings yellow

tinged with scarlet; fore wing with black discoidal lunule and spot beyond lower angle of cell, oblique postmedial series of spots from below costa to above vein 5 and spot below vein 2, subterminal series of diffused spots and series of points before termen; hind wing with discoidal point, slight medial line, maculate postmedial and subterminal lines, the former incurved below vein 4, and series of points before termen.

♀. Fore wing with the discoidal mark represented by two small spots and a small spot beyond lower angle of cell.

Hab. BR. E. AFRICA (*Ansorge*), 1 ♂, 1 ♀ type. *Exp.* ♂ 50, ♀ 56 millim.

7454. **Enmonodia carneotincta**, n. sp. (Plate CCIII. fig. 14.)

♀. Head dark brown with a purplish grey tinge; palpi pale crimson at base; thorax pale grey irrorated with fuscous, the tegulæ fuscous at base; pectus and the hair on coxæ and femora pale crimson; legs grey irrorated with fuscous; abdomen grey irrorated with fuscous and with orange-yellow segmental lines, the ventral surface with reddish segmental bands. Fore wing grey tinged with flesh-colour and irrorated with purple-brown, the terminal area tinged with red-brown; slight dark subbasal spots below costa and cell; antemedial line represented by an oblique dark striga from costa and obscure inwardly oblique maculate line from cell to inner margin; two small black discoidal spots; a medial dark bar from costa and obscure mark on inner margin; a patch of slight black irroration beyond end of cell; postmedial line represented by a dark spot on costa, and very indistinct oblique pale dentate line from vein 6 to inner margin; subterminal line grey defined at sides by rather diffused brown, nearly straight, from below costa to inner margin just before tornus; a series of dark points before termen. Hind wing grey tinged with flesh-colour and irrorated with purplish-brown, the costal area to beyond middle and inner margin flesh-pink; an oblique dark antemedial line and faint minutely waved medial line except on the pink areas; subterminal line double, brown filled in with whitish, almost straight; a series of dark points before termen. Underside of both wings orange tinged with scarlet, the basal half of costal areas irrorated with black; fore wing with slight discoidal lunule; hind wing with discoidal point; both wings with slight curved maculate medial line, rather diffused subterminal line maculate towards costa, and series of points before termen.

Hab. BR. BECHUANALAND, Lake N'gami (*Lugard*), 1 ♀ type. *Exp.* 54 millim.

SECT. V. Antennæ of male with short bristles and cilia; fore tibiæ with tuft of long hair from base; fore wing with the apex slightly produced.

- | | |
|--|----------------------|
| A. Fore wing with double subterminal line filled in with yellowish | <i>meridionalis.</i> |
| B. Fore wing with the subterminal line almost obsolete in male, single and defined on inner side by yellow in female | <i>burmanica.</i> |

7455. *Enmonodia meridionalis*, n. sp.

♂. Head and tegulae red-brown; thorax red-brown mixed with grey; palpi scarlet at base; pectus and femora yellow suffused with scarlet, the tibiae and tarsi grey-brown; abdomen scarlet, dorsally red-brown at base. Fore wing red-brown; antemedial line brown, indistinct except towards costa, excurved below costa, then oblique and slightly sinuous; two black-brown discoidal spots defined by grey; medial line brown, bent outwards below costa, then indistinct, oblique and sinuous; a greenish grey diffused patch below postmedial part of costa; postmedial line with oblique dark striga from costa, then brownish defined on outer side by greenish grey, oblique and dentate; subterminal line double filled in with yellowish, oblique, straight; a series of dark and white points before termen. Hind wing red-brown, the costal area to beyond

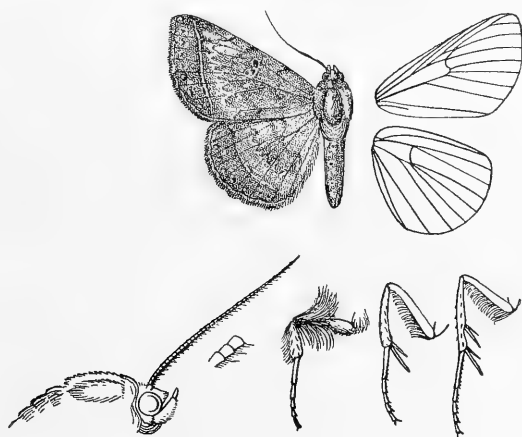


Fig. 66.—*Enmonodia meridionalis*, ♂. 1.

middle and inner margin scarlet; a small brown discoidal spot, oblique antemedial line, slight waved medial line with dark points at the veins, very indistinct subterminal line from costa to inner margin just above tornus, and series of dark and white points before termen. Underside of both wings yellow suffused with scarlet; fore wing with large dark discoidal spot, hind wing with smaller spot; both wings with curved medial line, curved waved postmedial line, rather maculate interrupted subterminal line, series of points before termen, and dark patch on terminal area below middle.

♀. Thorax white; abdomen dorsally yellowish; fore wing yellowish white irrorated with red-brown, the terminal area suffused with red-brown, the discoidal mark reduced to two points, the postmedial line to a double series of points, the subterminal line prominently filled in with white, a series of small brown spots before termen; hind wing yellow, the subterminal line prominently

filled in with white, a series of small brown spots before termen; the underside much yellower with the markings less distinct.

Ab. 1. Fore wing with the greenish on postmedial costal area and beyond the postmedial line replaced by greyish.—Cuddapah.

Hab. MADRAS, Cuddapah, Horsleykonda (*Campbell*), 1 ♂; CEYLON, Trincomali (*Ferbury*), 1 ♂, 1 ♀ type. *Exp.* 46–52 millim.

7456. *Enmonodia burmanica*, n. sp.

(Plate CCIII. figs. 15 ♂, 16 ♀.)

♂. Head and tegulæ dark grey-brown; thorax grey mixed with brown; pectus and femora yellow tinged with scarlet, the tibiæ and tarsi grey-brown; abdomen crimson, the basal segments dorsally grey mixed with brown. Fore wing purplish grey, the terminal area somewhat darker; antemedial line indistinct, dark, oblique, sinuous, bent inwards to costa; a large black-brown discoidal lunule defined by grey, its lower part somewhat dilated; medial line very indistinct, bent outwards below costa, then oblique, waved; postmedial line with oblique dark striga from costa, then slight, faintly defined on outer side by whitish marks, dentate and inwardly oblique; traces of an oblique subterminal line; a series of slight dark and whitish points before termen. Hind wing purplish grey, the terminal area suffused with brown, the inner margin crimson; an indistinct dark discoidal spot and sinuous antemedial line; an indistinct waved medial line with dark points on the veins and defined on outer side by slight whitish marks, excurved at discal and submedian folds; traces of a double subterminal line filled in with whitish from costa to inner margin just above tornus; a series of faint dark spots before termen. Underside of both wings orange suffused with scarlet; fore wing with the terminal area suffused with brown except towards apex, a dark spot in middle of cell and discoidal lunule, somewhat maculate medial line excurved beyond the cell, curved waved postmedial line, double diffused subterminal line, and series of small spots before termen; hind wing with slight discoidal lunule, somewhat maculate medial line excurved beyond the cell, curved waved postmedial line, waved subterminal line double from costa to vein 5, and series of small spots before termen.

♀. Head and tegulæ bright red-brown; thorax and base of abdomen ochreous suffused with rufous; fore wing yellow, the outer part of medial area except towards costa and the terminal area suffused with rufous, the lines distinct, the discoidal mark reduced to a slight dark lunule, the subterminal line double filled in with yellowish, a series of small brown and white spots before termen; hind wing yellow suffused with rufous especially on terminal area, the lines distinct, the subterminal line double filled in with yellow; underside of fore wing without dark suffusion on terminal area, the postmedial line of both wings indistinct.

Hab. BURMA, Myingyan (*Watson*), 1 ♂ type, Tilin Yaw (*Watson*), 1 ♀. *Exp.* ♂ 52, ♀ 58 millim.

SECT. VI. Antennæ of male minutely ciliated; fore wing with the apex slightly produced.

7457. *Enmonodia allardi*.

Ophiusa allardi, Oberth. Ét. Ent. iii. p. 35, pl. ii. f. 6 (1878).

Ophisma leucochiton, Mab. C. R. Soc. Ent. Belg. xxviii. p. cxc (1884).

♂. Frons and antennæ dark brown, the former with yellowish lateral spots, vertex of head and tegulæ white tinged with yellow; palpi yellow, the extremities of 1st and 2nd joints and the 3rd joint dark brown; thorax white; pectus and legs yellow, the fore legs red-brown with the tarsi fuscous, the mid and hind tarsi grey;

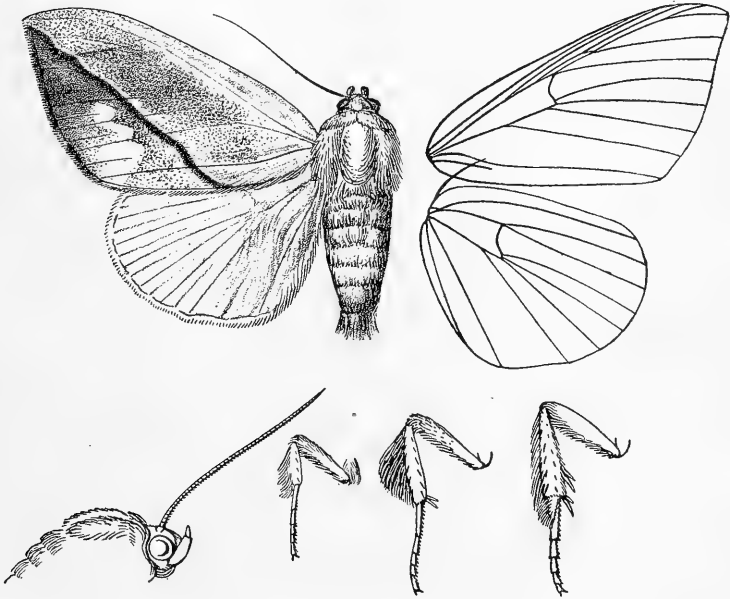


Fig. 67.—*Enmonodia allardi*, ♂. $\frac{1}{4}$.

abdomen white with the anal tuft and ventral surface yellow. Fore wing white irrorated with red-brown except on basal area, costal area to beyond middle, and on inner half of terminal area, the costal edge red-brown towards apex; a strong oblique red-brown line from apex to middle of inner margin, with red-brown suffusion below it towards apex; cilia red-brown except towards tornus. Hind wing pure white. Underside of both wings white, the costal area and apical area of fore wing faintly tinged and irrorated with brown; fore wing with slight black points before termen in the

interspaces from below apex to above vein 5; hind wing with slight black points before termen in the interspaces from apex to above vein 3.

Hab. W. AFRICA, 1 ♂; UGANDA, Entebbe (*Minchin*), 1 ♂; ZANZIBAR; MADAGASCAR. *Exp.* 96 millim.

Genus **CALLIODES.**

Type.

Calliodes, Guen. Noct. iii. p. 192 (1852) *appollina*.

Proboscis fully developed; palpi upturned, the 2nd joint reaching to vertex of head and moderately scaled, the 3rd rather long; frons smooth with tuft of hair above; eyes large, round; antennæ of male with serrations ending in long bristles, the apical part ciliated; thorax clothed with hair and scales mixed and without crests; tibiæ all spined and smoothly scaled; abdomen without crests. Fore wing with the apex rounded, the termen evenly curved, crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the cell about one-third length of wing; veins 3, 4 from angle; 5 fully developed from just above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

A. Fore wing with narrow white band beyond the medial line. *appollina*.

B. Fore wing without white band beyond the medial line ... *pretiosissima*.

7458. *Calliodes appollina*. (Plate CCIII. fig. 18.)

Calliodes appollina, Guen. Noct. iii. p. 193 (1852).

♂. Head and thorax ochreous white tinged with brown, the tegulæ blackish at base; palpi darker at tips; sides of frons with blackish spots; fore legs suffused with brown; abdomen ochreous white suffused with brown except at base, the two basal segments with blackish bands, the ventral surface ochreous white. Fore wing ochreous white suffused with reddish brown, the costa darker brown; subbasal line represented by double dark brown bars in submedian interspace; antemedial line double, dark brown, inwardly oblique; a very large inverted comma-shaped mark at end of cell, with black centre with some silvery blue on the tail and inner side of head and yellowish white annulus defined by black with yellowish white below it, and a black-brown patch on inner area; a curved yellowish white postmedial line defined on inner side by black-brown and slightly angled inwards at vein 1; a curved waved yellowish white subterminal line, with series of small yellowish white spots before it and dark spots beyond it; a dark terminal line. Hind wing ochreous white suffused with red-brown especially on terminal area; a dark brown discoidal lunule; a double waved dark brown medial line excurved beyond the cell; a double waved brown postmedial line filled in with small yellowish white spots and defined on outer side by yellowish white; an indistinct double waved dark brown subterminal line and a dark terminal line. Underside of both wings yellowish white, the terminal area tinged with red-brown; fore wing with the head of

the discoidal mark dark, and a double minutely waved brown subterminal line; hind wing with brown discoidal lunule, waved postmedial line, and double waved subterminal line.

Hab. SENEGAL; ABYSSINIA, Atbara (*Gerrard*), 1 ♂. *Exp.* 42 millim.

7459. *Calliodes pretiosissima*.

Calliodes pretiosissima, Holl. Ent. xxv. Suppl. p. 94 (1892); Pr. U.S. Nat. Mus. xviii. p. 254, pl. 8. f. 2.

Calliodes rivuligera, Butl. P. Z. S. 1893, p. 679.

Head and thorax grey-brown tinged with fuscous, the tegulæ edged with fuscous; palpi fuscous, ochreous on inner side and with some pale scarlet at base; pectus pale scarlet, the legs grey-brown; abdomen grey-brown tinged with fuscous and with fuscous lines on basal segments, the ventral surface pale scarlet. Fore wing grey-brown with a cupreous gloss except on costal area to beyond middle; the basal area with five waved blackish lines tinged with silvery blue; a large inverted comma-shaped discoidal mark with

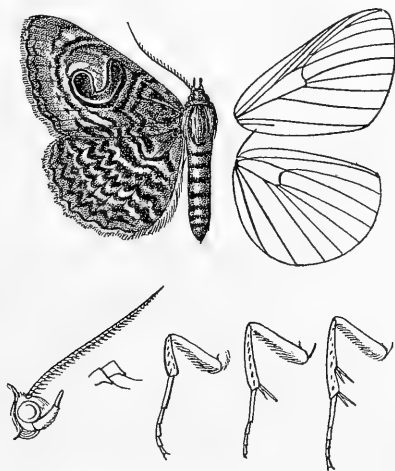


Fig. 68.—*Calliodes pretiosissima*, ♂. $\frac{1}{4}$.

grey-brown centre defined by black with yellow on its outer side and white marks on outer side of tail and inner side of head which is filled in by a black patch with three silvery-blue streaks on it, the upper part of tail with silvery blue and black line in centre; postmedial line double, black, excurved from costa round the discoidal mark and incurved below it, the outer line waved and tinged with silvery blue; two series of black rather triangular subterminal spots, the inner series tinged with silvery blue; a waved black line before termen and a terminal line. Hind wing

grey-brown with a cupreous gloss; the medial area with four waved black lines; two waved postmedial lines tinged with silvery blue; a subterminal series of small black spots, a waved black line before termen and a terminal line. Underside of both wings orange-scarlet; fore wing with slight double dark discoidal lunule, post-medial elliptical black spot between veins 5 and 3, waved sub-terminal line with some dark suffusion beyond it, followed by black points, and a dark terminal line; hind wing with black discoidal point, slight antemedial line excurved beyond the cell, waved postmedial and subterminal lines, series of black spots before termen and terminal line.

Hub. CONGO, Katanga, Kambove (*Neave*), 2 ♀; BR. E. AFRICA; GERM. E. AFRICA, Usangu (*Neave*), 1 ♀; BR. C. AFRICA, Ruvo Valley (*Neave*), 1 ♀, Lake Nyasa (*Neave*), 1 ♂, Zomba (*Johnston*), 1 ♂, 1 ♀ type *rivuligera*; LORENÇO MARQUES, Delagoa Bay (*Monteiro*), 1 ♂, 1 ♀; MASHONALAND, Mazoe (*Marshall*), 2 ♂; RHODESIA, Bulawayo (*Marshall*), 1 ♂; ZULULAND (*Anderson*), 1 ♀; NATAL, Gadzima (*Marshall*), 1 ♂. *Exp.* 44-52 millim.

Genus SPEIREDONIA.

	Type.
<i>Speiredonia</i> , Hübn. Verz. p. 272 (1827)	<i>retorta</i> .
<i>Spirama</i> , Guen. Noct. iii. p. 194 (1852)	<i>suffumosa</i> .
<i>Hypopyra</i> , Guen. Noct. iii. p. 198 (1852)	<i>triloba</i> .

Proboscis fully developed; palpi upturned, the 2nd joint reaching to about vertex of head and rather broadly scaled, the 3rd long; frons smooth with tuft of hair above; eyes large, round; antennæ of male typically minutely serrate and fasciculate; thorax clothed with hair only and without crests; tibiæ slightly fringed with hair on outer side, all the tibiæ spined; abdomen smoothly scaled and without crests. Fore wing with the costa highly arched towards apex which is rounded, the termen evenly curved and slightly crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the cell about one-third length of wing; veins 3, 4 from angle of cell; 5 fully developed from above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only; the male typically with a fold on inner area on upper side containing an erectile fringe of very long hair.

The species in Section II. grade into one another and might equally well be treated as all more or less localised forms of one species.

SECT. I. Antennæ of male strongly serrate and fasciculate; hind wing without fold and fringe of hair on inner area.

A. Wings brown suffused with purple-grey	<i>glaucescens</i> .
B. Wings yellow tinged with flesh-red	<i>griseisigna</i> .

7460. *Speiredonia glaucescens*.

Calliodes glaucescens, Butl. P. Z. S. 1893, p. 680.

Head and tegulæ dark red-brown, the palpi at base, lower part of frons, and gulæ crimson; thorax grey-brown; pectus crimson; legs grey-brown, the femora fringed with crimson, the fore and

mid tibiae fuscous; abdomen crimson, the dorsum grey-brown towards base. Fore wing reddish brown tinged with grey; ante-medial line fine, fuscous with a leaden gloss, slightly curved; a very large inverted comma-shaped discoidal mark, its centre red-brown with the head filled in with black suffused with silvery blue on inner side, the upper part of tail filled in with silvery blue and white, the mark defined by black on inner side, below, and on outer side of head, with a fine grey line inside it and whitish beyond it on outer side of head, the outer side of tail and inner side of head defined by a waved white line; postmedial line dark brown, arising below costa, excurved round the discoidal mark, then oblique to inner margin towards which it is dilated; two

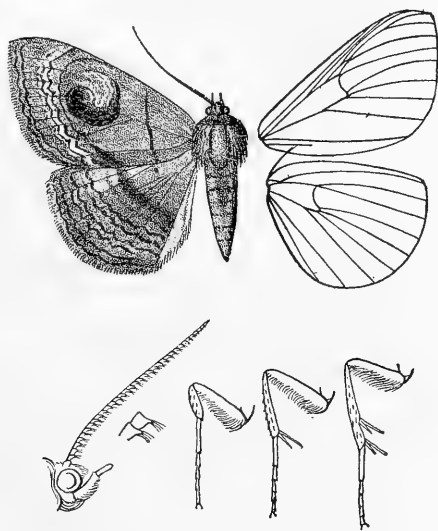


Fig. 69.—*Speiredonia glaucescens*, ♂. $\frac{1}{2}$.

curved, waved silvery-blue subterminal lines, the inner arising below costa, the outer at vein 7, with a cupreous gloss between and just beyond them; two waved black lines before termen. Hind wing reddish brown tinged with grey, the costal area to beyond middle and the inner area pale scarlet; a blackish discoidal point; a strong black-brown medial line with a slighter brown line beyond it; two waved postmedial lines, silvery blue except towards costa; two waved subterminal lines, the inner with silvery blue spots on it except towards costa; two waved black lines before termen. Underside of both wings scarlet with small black discoidal spots, curved maculate medial and postmedial lines, and the hind wing with subterminal series of black points.

Hab. CONGO, Katanga, Kambove (*Neave*), 1 ♀; GERM. E. AFRICA, Stevenson Rd. (*Dewar*), 1 ♂; BR. C. AFRICA, Fwambo (*Carson*), 2 ♀, Zomba (*Johnston*), 3 ♂, 1 ♀ type, Blantyre (*Neave*), 1 ♂; MASHONALAND, Salisbury (*Marshall*), 1 ♂; 1 ♀, Umtali (*Marshall*), 1 ♀. *Exp.* 54-58 millim.

7461. *Speiredonia griseisigna*, n. sp. (Plate CCIII. fig. 17.)

♂. Head and tegulæ chocolate-brown with some ochreous tinged with scarlet on vertex of head; palpi at base and the 2nd joint in front and behind crimson; antennæ with the shaft white above; thorax ochreous tinged with rufous; legs grey-brown, the coxæ and femora pale crimson; abdomen orange tinged with scarlet, the basal segments dorsally irrorated with brown. Fore wing fulvous yellow tinged with flesh-colour and slightly irrorated with brown, the terminal area faintly tinged with olive-brown, the veins paler; antemedial dark points on the veins; a narrow discoidal lunule with its upper extremity produced, defined by blackish, its centre irrorated with brown and grey, a similar figure-of-8-shaped spot beyond lower angle of cell and a small spot below vein 3; medial line purplish brown, rather diffused, excurved and obsolescent beyond the cell, then oblique; a curved postmedial series of dark points on the veins; an indistinct pale waved subterminal line, and series of dark points before termen; cilia red-brown. Hind wing fulvous yellow slightly irrorated with brown, the terminal area tinged with olive-brown, the costal area to near apex and the inner margin pale scarlet; a dark discoidal point, oblique purple-brown medial line, postmedial series of dark points on the veins, pale waved subterminal line and series of dark points before termen; cilia red-brown. Underside of both wings orange suffused with scarlet; fore wing with dark point in middle of cell and small discoidal spot; hind wing with dark discoidal point; both wings with indistinct curved red medial and postmedial lines and some slight dark points before termen.

Hab. MASHONALAND, Umtali (*Marshall*), 1 ♂ type. *Exp.* 56 millim.

SECT. II. Antennæ of male minutely serrate and fasciculate; hind wing with fold on inner area on upperside containing an erectile fringe of very long hair.

Key to the males.

- A. Fore wing with the discoidal mark not indented on outer side or reduced to spots.
 - a. Hind wing with distinct pale subterminal line, the waved lines beyond it prominent and black *japonica*.
 - b. Hind wing with the subterminal line and waved lines beyond it indistinct.
 - a¹. Fore wing with the double waved subterminal line and waved lines before termen prominent and black.

- a*². Fore wing with the medial line evenly excurved beyond the discoidal mark *retorta*.
- b*². Fore wing with the medial line strongly excurved beyond the upper part of the discoidal mark *recessa*.
- b*¹. Fore wing with the double waved subterminal line and waved lines before termen indistinct and fuscous.
 - a*². Fore wing with the postmedial line oblique to inner margin *revolvens*.
 - b*². Fore wing with the postmedial line slightly excurved above inner margin *suffumosa*.
- c*. Hind wing without subterminal line or lines before termen on upperside.
 - a*¹. Fore wing with the medial line traversing the discoidal mark, the postmedial line touching its outer edge *sumbana*.
 - b*¹. Fore wing with the medial line excurved round the discoidal mark, the postmedial line well beyond it.
 - a*². Fore wing with dark subterminal line and slight lunulate line before termen *remota*.
 - b*². Fore wing without dark subterminal line or lunulate line before termen *calaoensis*.
- B*. Fore wing with the discoidal mark indented on outer side *indenta*.
- C*. Fore wing with the discoidal mark reduced to spots.
 - a*. Fore wing ochreous suffused with purplish red-brown... *triloba*.
 - b*. Fore wing greyish suffused with olive-brown *martha*.

Key to the females.

- A*. Fore wing with the discoidal mark not indented on outer side or reduced to spots.
 - a*. Hind wing with the pale subterminal line strongly waved.
 - a*¹. Hind wing with narrow white band beyond the medial line and broad blackish band before the subterminal line { *japonica*,
retorta.
 - b*¹. Hind wing with broad whitish band beyond the medial line and narrow blackish band before the subterminal line.
 - a*². Fore wing with the head of the discoidal mark large *recessa*.
 - b*². Fore wing with the head of the discoidal mark small *revolvens*.
 - b*. Hind wing with the pale subterminal line straight or hardly waved.
 - a*¹. Size small, about 60 millim.
 - a*². Fore wing grey mostly suffused with black-brown . *sumbana*.
 - b*². Fore wing grey slightly suffused with brown; both wings with the postmedial and subterminal lines closely approximated *voluta*.
 - c*. Fore wing ochreous slightly suffused with brown.
 - a*³. Fore wing with brown spot on inner margin before the postmedial line *remota*.
 - b*³. Fore wing without brown spot on inner margin before the postmedial line *calaoensis*,
suffumosa.
 - b*¹. Size large, 65-80 millim.
- B*. Fore wing with the discoidal mark more or less indented on outer side *indenta*.
- C*. Fore wing with the discoidal mark reduced to spots.
 - a*. Wings ochreous tinged with flesh-pink *triloba*.
 - b*. Wings greyish suffused with olive-brown *martha*.

7462. *Spiredonia japonica*. (Plate CCIX. figs. 3 ♂, 4 ♀.)*Spirama japonica*, Guen. Noct. iii. p. 195 (1852).*Spirama simplicior*, Butl. Trans. Ent. Soc. 1881, p. 198.

♂. Head and tegulæ deep red-brown; palpi crimson at base; thorax red-brown mixed with greyish ochreous; pectus red-brown; legs dark brown, the coxæ and fringes of hair on femora crimson; abdomen crimson, the two basal segments dorsally red-brown, the four following segments with triangular black-brown patches, a small spot on penultimate segment and lateral series of black bars. Fore wing ochreous suffused with red-brown, the medial inner area deeper red-brown; antemedial line dark brown, excurved below costa, oblique and with black-brown suffusion beyond it below the cell; a very large inverted comma-shaped discoidal mark, black-brown with some ochreous irroration at middle and slight ochreous annulus, the head defined by whitish below and on outer side, the outer side of tail and inner side of head defined by a white line; some ochreous white in the sinus of the discoidal mark and a red-brown fascia from above its head to the outer postmedial line with an ochreous white streak above it; two blackish postmedial lines, wide apart towards costa and the inner line arising below the costa, approximated and filled in with black-brown towards inner margin, excurved towards costa, then oblique; two waved brown subterminal lines arising at vein 7, the inner line almost obsolete above vein 5; the postmedial area with black streaks above and below vein 6, the lower extending to the discoidal mark, and slight white streaks above and below vein 8 before the two waved black lines before termen. Hind wing with the basal half dark brown, the terminal half ochreous tinged with red-brown and with dark brown suffusion before the subterminal line; medial line black-brown defined on outer side by ochreous; subterminal line double, black-brown filled in with ochreous, the inner line diffused on inner side; a double waved black-brown line before termen; cilia greyish. Underside of both wings scarlet, the basal areas and veins suffused with brown; fore wing with two curved brown postmedial lines and a subterminal line, a brown spot beyond the 1st postmedial line between veins 5 and 3; hind wing with dark discoidal point and curved brown medial, postmedial, and subterminal lines.

♀. Thorax brownish white with dark brown band on metathorax; abdomen with the 1st three segments dorsally banded black-brown and whitish, the terminal segments scarlet with black-brown bands, narrower on ventral surface; fore wing with the ground-colour brownish white; hind wing with the basal area brownish white, the medial area dark brown, the minutely waved black medial line defined on inner side by whitish, on outer side by a white band, the postmedial area pale reddish brown, the double subterminal line filled in with white, the terminal area brownish grey.

Hab. JAPAN, Nikko (*Maries*), 1 ♂, Tokio (*Maries*), 2 ♂, 2 ♀ type *simplicior*, Yokohama (*Jonas, Manley*), 2 ♂, 2 ♀, Nagasaki

(*Leech*), 1 ♀, Fushiki (*Leech*), 1 ♀, Chenado (*Leech*), 1 ♀, Kiushiu (*Leech*), 1 ♀. *Exp.* ♂ 68, ♀ 70 millim.

7463. *Speiredonia retorta*.

Noctua retorta, Linn. Mus. Lud. Ulr. p. 376 (1764); Clerck, Icones, pl. 54. f. 2.

Noctua spiralis, Fabr. Spec. Ins. ii. p. 211 (1781); Hmps. Moths Ind. ii. p. 553.

Speiredonia helicina, Hübn. Zutr. iii. 14, figs. 437, 438 (1827).

Erebis chimista, Koll. Hügel's Kaschmir, iv. p. 475 (1842).

Spirama jinchuena, Butl. A. M. N. H. (5) xi. p. 115 (1883).

Spirama inequalis, Butl. A. M. N. H. (5) xi. p. 116 (1883).

Spirama confusa, Butl. Ill. Het. B.M. vii. p. 78, pl. 132. ff. 6-8 (1889).

Spirama coharens, Moore, Lep. Ceyl. iii. p. 149, pl. 165. ff. 3, 3a (nec Wlk.).

♂. Head and thorax dark red-brown, the mesothorax with some greyish; palpi crimson at base; pectus brown, legs dark brown; the throat, coxæ, and hair on femora crimson; abdomen crimson, the two basal segments dorsally black-brown, the four following segments with triangular black-brown patches and a small spot on penultimate segment. Fore wing dark red-brown,

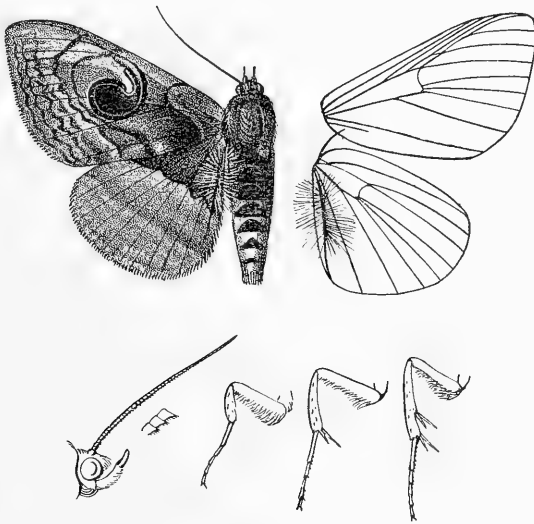


Fig. 70.—*Speiredonia retorta*, ♂. 1.

the costal area tinged with greyish and the terminal area greyish-brown; antemedial line black, excurved below costa, then oblique and defined on inner side by greyish; a large inverted comma-shaped discoidal mark, ochreous irrorated with blackish, the head

filled in with black, a slight greyish annulus defined by black with some greyish outside it, the outer side of tail and inner side of head defined by silvery blue, a diffused red-brown fascia from above the head to the outer postmedial line with a whitish streak above it; two black postmedial lines widely separated towards costa and the inner arising from the tail of the discoidal mark, excurved round it, then oblique to inner margin, the outer oblique to vein 6, then inwardly oblique and slightly bent outwards to inner margin, defined on outer side by ochreous except towards costa; the postmedial area with slight black streaks above and below vein 6, the lower extending to the discoidal mark and with white streaks above and below vein 8; two minutely waved brown subterminal lines, the inner arising at vein 5 and blackish towards inner margin, the outer arising at vein 7; two waved black lines before termen. Hind wing with the basal area black-brown, the rest of wing grey-brown, the dark area bounded by the minutely waved black medial line faintly defined on outer side by whitish; a diffused dark postmedial line with traces of another line beyond it and two faint subterminal lines. Underside of both wings dull scarlet more or less suffused with brown, the veins brown, slight dark spots in middle of cell and on discocellulars, two curved postmedial lines and a subterminal line; hind wing with dark discoidal point and curved medial, postmedial, and subterminal lines.

♀. Thorax ochreous suffused with red-brown and with dark brown band on metathorax; abdomen with ochreous whitish dorsal bands on 1st four segments before the black bands; fore wing ochreous suffused with red-brown; hind wing ochreous suffused with reddish brown, two diffused black-brown antemedial bands except on costal area, the medial black line more waved and defined on outer side by ochreous white, the postmedial line waved and defined on outer side by ochreous white, two distinct waved black lines before termen; the underside brighter scarlet.

Hab. JAPAN, Satsuma (*Leech*), 1 ♂; COREA, Jinchuen (*Perry*), 1 ♂, 1 ♀ type *jinchuena*, Port Lazareff (*Perry*, *Carpenter*), 2 ♂, 2 ♀ type *inequalis*, Mokpho (*Ichikawa*), 1 ♀, Gensan (*Leech*), 1 ♀; N. CHINA, Wei-ha-wei (*de la Garde*), 1 ♀, Chifu (*B.-Fletcher*), 1 ♂, 1 ♀; C. CHINA, Shanghai (*Pryer*), 1 ♂, 1 ♀, Chusan Is. (*J. J. Walker*), 5 ♂, 4 ♀, Ichang (*Hobson*), 1 ♀, Kiukiang (*Pryer*, *Pratt*), 2 ♂, 3 ♀, Fokien (*de la Garde*), 1 ♀; W. CHINA, Changyang (*Pratt*), 1 ♀, Wa-shan (*Pratt*), 1 ♀, Ta-chien-lu (*Pratt*), 1 ♂, 2 ♀, Moupin (*Kricheldorf*), 1 ♂; HONGKONG (*Bowring*, *Champion*), 2 ♀; PUNJAB, Kulu, Sultanpur (*G. Young*), 1 ♂, 1 ♀, Dharinsála (*Hocking*), 4 ♂, 3 ♀ type *confusa*, Murree, 1 ♀, Kasauli, 1 ♀, Jubbulpur, 3 ♂, 2 ♀, Allahabad, 2 ♀, Umbala, 1 ♂, Manpuri, 2 ♀; ASSAM (*Badgley*), 1 ♀, Shillong (*Parish*), 1 ♀; BENGAL, 1 ♀; CENTR. PROVINCES, Raipur, 1 ♀; BOMBAY, 2 ♀; MADRAS, Bangalore, 1 ♀, Nilgiris (*Hampson*), 2 ♂, 2 ♀; CEYLON; BURMA, Moulmein (*Clerk*), 1 ♀, Byingyi (*Bingham*), 1 ♀; PENANG, 1 ♂. *Ecp.* 54-82 millim.

7464. *Speiredonia recessa*. (Plate CCIX. figs. 8 ♂, 9 ♀.)*Spiramia recessa*, Wlk. xiv. 1322 (1858).

♂. Head and thorax dark brown; palpi scarlet at base; the hair on coxæ and femora scarlet; abdomen scarlet, the 1st two segments dorsally black-brown, the four following segments with triangular dorsal black-brown patches, lateral series of small spots and sublateral spots on terminal segments. Fore wing dark brown, the terminal area tinged with greyish; antemedial line dark, excurved from costa to median nervure, then oblique; a large inverted comma-shaped discoidal mark, defined by black and the outer side of tail and inner side of head by silvery white, with fine ochreous annulus and the head filled in with black-brown; medial line dark, arising from the tail of the discoidal mark and excurved round it, then oblique; postmedial line dark, excurved from costa to discoidal fold, then oblique and approximated to the medial line; the postmedial area with dark streaks on veins 7, 6 and white streaks on veins 9 and 8 extending to the waved line before termen; a slightly waved dark subterminal line, indistinctly double except towards costa; two waved dark lines before termen. Hind wing with the basal half dark brown, the terminal half grey-brown; indistinct dark antemedial, medial, and subterminal lines. Underside of both wings brown; fore wing with slight dark marks in middle of cell and on discocellulars; hind wing with discoidal point; both wings with curved medial, postmedial, and subterminal lines.

♀. Thorax ochreous with some brown mixed; abdomen with the four basal segments banded ochreous and brown, the terminal segments scarlet with slight brown segmental lines; fore wing ochreous tinged in parts with red-brown, especially on terminal area, the lines distinct, some dark brown suffusion beyond the inner half of antemedial line and between the medial and postmedial lines on inner area, the postmedial line waved except towards costa; hind wing ochreous tinged with brown at base and the terminal area suffused with red-brown, two diffused black-brown antemedial lines and a minutely crenulate medial line, two brown subterminal lines, the inner line somewhat diffused, the outer waved and with waved ochreous line before it, two waved brown lines before termen; underside of both wings scarlet with the markings distinct.

Hab. N. AUSTRALIA (*Hunter*), 3 ♂ type, Port Darwin (*Buckland*), 1 ♀. *Exp.* 62-66 millim.

7465. *Speiredonia revolvens*. (Plate CCX. figs. 1 ♂, 2 ♀.)*Spiramia revolvens*, Wlk. xv. 1821 (1858).

♂. Head and thorax chocolate-brown; palpi crimson at base; legs grey-brown, the coxæ and hair on femora crimson; abdomen crimson, the 1st six segments dorsally fuscous brown, expanding triangularly at sides from 3rd to 6th segments, the penultimate

segment with a fuscous dorsal line. Fore wing with the basal half chocolate-brown, the terminal half grey-brown; traces of a dark antemedial line, excurved below the costa and oblique below the cell; a large inverted comma-shaped discoidal mark defined by black, its head filled in with black with an ochreous annulus, its tail filled in with ochreous, the outer side of tail and inner side of head defined by a white line; medial line slight, dark, arising from the tail of discoidal mark, excurved round it and touching it, then oblique; postmedial line dark, excurved from costa to vein 4, then oblique and slightly waved; a slightly waved dark subterminal line, double from vein 2 to inner margin; two waved dark lines before termen. Hind wing with the basal half deep chocolate-brown, the terminal half grey-brown; indistinct slightly waved dark postmedial and subterminal lines. Underside of both wings brown; fore wing with slight dark spots in middle of cell and on discocellulars and faint curved medial and postmedial lines; hind wing with faint ante- and postmedial lines.

♀. Thorax ochreous tinged with red-brown; abdomen with the 1st four segments banded ochreous white and black-brown, the two following segments with dorsal black-brown patches; fore wing ochreous tinged with olive-brown, the costal area brownish tinged with purplish grey; the lines distinct, some red-brown suffusion beyond the inner half of antemedial line, the postmedial line tinged with leaden grey except between veins 7 and 5 and defined on outer side by whitish from vein 5 to inner margin; hind wing ochreous tinged with olive-brown, two diffused dark antemedial lines, a minutely waved leaden grey medial line with an ochreous white band beyond it, a double dark brown waved subterminal line filled in with ochreous white, the inner line diffused on inner side, two waved lines before termen. Underside of both wings scarlet; fore wing with slight brown marks in middle of cell and on discocellulars, medial, postmedial and double slightly waved subterminal lines except towards costa and inner margin; hind wing with discoidal point, curved medial line, waved postmedial line, double subterminal line, series of points before termen, and waved terminal line.

Hab. GERM. N. GUINEA, Astrolabe Bay (*Schmidt*), 1 ♀; N. AUSTRALIA (*Elsey*), 1 ♂, 1 ♀ type. *Exp.* 58–60 millim.

7466. *Speiredonia suffumosa*.

Noctua retorta, Cram. Pap. Exot. ii. p. 29, pl. 116. f. F, and iii. p. 146, pl. 274. f. A; Hmps. Moths Ind. ii. p. 553 (nec Linn.).

Spirama suffumosa, Guen. Noct. iii. p. 195 (1852).

Spirama isabella, Guen. Noct. iii. p. 196 (1852).

Spiramia cohærens, Wlk. xiv. 1321 (1858).

Spirama helicina, Moore, Lep. Ceyl. iii. p. 150, pl. 165. ff. 4, 4a (nec Hübn.).

♂. Head and thorax dark brown; palpi scarlet at base; the hair on coxæ and femora scarlet; abdomen scarlet, the four basal segments dorsally black-brown, the two following segments with

dorsal black-brown bands, lateral series of small spots and sublateral spots on terminal segments. Fore wing dark brown, the terminal area tinged with greyish; antemedial line very indistinct, dark, excurved to median nervure, then oblique; an inverted comma-shaped discoidal mark, defined by black, and the outer side of tail and inner side of head by silvery white, with a fine ochreous annulus, the head filled in with black-brown; medial line very indistinct, arising from the head of the discoidal mark, excurved round it and touching it, then oblique; postmedial line indistinct, dark, excurved to vein 5, then oblique; traces of two slightly waved subterminal lines except towards costa and of two waved lines before termen. Hind wing with the basal area dark brown, the rest of wing greyish brown; faint traces of antemedial, postmedial, and subterminal lines. Underside of both wings brown with traces of curved medial, postmedial, and subterminal lines.

♀. Thorax grey suffused with brown; abdomen with the four basal segments dorsally banded ochreous and black-brown, the two following segments with dorsal black-brown bands; fore wing grey-brown with the inner half of medial area and the terminal area except towards apex greenish grey, the lines distinct, the antemedial line defined on inner side by whitish and with a line beyond it from cell to inner margin excurved in submedian interspace, the discoidal mark very large, the medial line double and somewhat diffused on inner area and with white streak beyond it above vein 7, the postmedial line slightly waved and defined on outer side by white from vein 5 to inner margin, the postmedial area with dark streaks on veins 7, 6; hind wing with the basal and terminal areas greyish, the postmedial area red-brown, two diffused black-brown antemedial lines, a minutely waved medial line defined on outer side by white, subterminal line double filled in with ochreous white, the inner line diffused on inner side, two waved lines before termen; underside of both wings scarlet with the veins brownish, dark discoidal marks, curved medial line, minutely waved postmedial line, double subterminal line, and slight waved line before termen, cilia brown.

Ab. 1. ♀. Thorax and wings more ochreous and less suffused with brown.

Hab. JAPAN, Tsurugu (*Leech*), 1 ♂, Kiushiu, 1 ♀, Fushiki (*Leech*), 1 ♀, Tokio (*Maries*), 2 ♀ type *simplicior*, ♀, Yokohama (*Jonas*, *Pryer*, *B.-Fletcher*), 3 ♂, 2 ♀; N. CHINA (*Fortune*), 1 ♂; CENTR. CHINA, Chusan Isl. (*J. J. Walker*), 2 ♂, 2 ♀, Kiukiang (*Pryer*, *Pratt*), 2 ♂, 1 ♀, Fokien, Ting-hai (*de la Garde*), 1 ♂; W. CHINA, Chang-yang (*Pratt*), 1 ♂, Omei-shan, 1 ♀, Chia-kou-ho (*Pratt*), 1 ♂, Kwei-chow, 1 ♂; PUNJAB, Kulu, Sultanpur (*G. Young*), 1 ♂, Dharmasala (*Hocking*), 1 ♂, 2 ♀, Masuri, 1 ♂, Kasauli, 1 ♂, Dalhousie (*Harford*), 1 ♂, Umballa (*Read*), 1 ♀, Hurripur (*Yerbury*), 1 ♂; SIKHIM (*Rothney*, *Boyle*, *Lidderdale*, *Dudgeon*), 2 ♂, 4 ♀; ASSAM (*Badgley*), 2 ♂, 1 ♀, Khásis, 1 ♂, Silhet (*Stainsforth*), 1 ♀, Shillong (*Parish*), 2 ♀, Tezpur (*Parish*), 1 ♀; BENGAL, 1 ♂; CENTR. PROVINCES, Raipur (*Betham*), 2 ♂; BOMBAY, Kanara, 1 ♀;

MADRAS, Malabar, 2 ♀, Calicut (*Fellowes-Wilson*), 1 ♀, Nilgiris (*Hampson*), 2 ♂, 2 ♀, Tranquebar (*Morris*), 1 ♀; CEYLON (*Templeton*, *Lindesay*), 1 ♂, 2 ♀, Kandy (*Meade-Waldo*), 1 ♂; BURMA, Moulmein (*Clerke*), 1 ♂, 1 ♀ type *cohærens*; ANDAMANS, 1 ♂; ? PHILIPPINES, Manila; JAVA (*Horsfield*), 1 ♂, 1 ♀. *Exp.* 62-82 millim.

Larva. Ochreous-yellow suffused and streaked with red-brown; the lines yellow, the dorsal line double, the subdorsal and lateral lines single; all the prolegs present.

7467. *Speiredonia sumbana*. (Plate CCX. figs. 3 ♂, 4 ♀.)

Spirama sumbana, Swinh. A. M. N. H. (7) xiv. p. 422 (1904).

♂. Head and thorax dark brown; pectus and legs greyer brown, the hair on coxæ and femora faintly tinged with scarlet; abdomen black-brown, the anal tuft scarlet, the ventral surface tinged with scarlet. Fore wing dark brown, the terminal area tinged with grey; antemedial line indistinct, dark, excurved from costa to median nervure, then oblique; a very large inverted comma-shaped discoidal mark defined by black and the outer side of tail and inner side of head by white; medial line dark, excurved below costa, passing through the head of the discoidal mark and incurved below it; dark streaks on veins 7, 6 from above the discoidal mark to the postmedial, line which is oblique from costa to vein 7, then inwardly oblique and touching the discoidal mark; an indistinct double waved subterminal line and two waved lines before termen, the outer very indistinct. Hind wing dark brown, the terminal area greyish. Underside of both wings brown with indistinct curved medial, postmedial, and subterminal lines.

♀. Thorax grey-brown; abdomen with the 1st four segments dorsally banded greyish and black, the two following segments with black patches. Fore wing grey-brown, the antemedial line defined on inner side by white and with dark suffusion beyond it from cell to inner margin, the discoidal mark smaller, black defined by whitish, with fine ochreous annulus and some silvery blue on the tail, the medial line excurved round the discoidal mark; the postmedial line waved and defined on outer side by white from vein 5 to inner margin, the subterminal line double and diffused from vein 5 to inner margin, the two waved lines before termen distinct; hind wing grey suffused in parts with dark brown, two diffused antemedial lines, medial line defined on outer side by white, a double diffused subterminal line filled in with whitish and two waved lines before termen. Underside of both wings scarlet with the veins brownish; fore wing with slight dark marks in middle of cell and on discocellulars; hind wing with dark discoidal point; both wings with curved medial, postmedial, and subterminal lines and series of dark points before termen.

Hab. SUMBA, Waingapo, 1 ♂, 1 ♀ type. *Exp.* 58 millim.

*7468. *Speiredonia voluta*.*Spirama voluta*, Feld. Reis. Nov. pl. 115. f. 9 (1874).

♀. Head and thorax pale grey tinged with brown; palpi red-brown, scarlet at base; frons and tegulæ red-brown; antennæ with the shaft white above; pectus scarlet; legs grey-brown, the femora tinged with scarlet; abdomen scarlet, the dorsum pale grey with reddish brown bands narrowing to a point on 5th segment. Fore wing pale grey tinged in parts with reddish brown; an oblique subbasal red-brown striga from costa; antemedial line ochreous whitish, rather diffused, defined on outer side by diffused red-brown, strongly excurved to median nervure, then oblique; an inverted comma-shaped black-brown discoidal mark edged on inner side and below by deep black and defined on outer side and below by a fine whitish line; medial line fine, red-brown, slightly waved, strongly excurved to vein 4, then oblique; postmedial line reddish brown, with darker points at the veins, oblique to vein 6, then inwardly oblique, defined on outer side by yellowish white; a diffused oblique rufous streak from apex to the outer part of the discoidal mark, wedge-shaped before the postmedial line; subterminal line slight, double, oblique, from the rufous streak to inner margin; a patch of rufous suffusion at middle of terminal area; a dentate brown line before termen with minute black points at the interspaces, and a fine waved brown line just before termen. Hind wing pale ochreous greyish tinged in parts with red-brown, the inner area yellowish; an oblique red-brown antemedial line; a faint red-brown medial shade; postmedial line red-brown, minutely waved, defined on outer side by ochreous whitish; subterminal line double, dark red-brown, rather diffused, filled in with pale ochreous; a patch of red-brown suffusion at middle of terminal area, a dentate brown line with dark points in the interspaces before termen, and fine waved brown line just before termen. Underside pale scarlet; fore wing with minute brown spots in middle of cell and on discocellulars, oblique medial line, postmedial line excurved below costa, rather diffused subterminal line, and terminal shade with dark points before it on the interspaces; hind wing with minute discoidal spot, curved minutely waved medial and postmedial lines, curved subterminal line, and series of points before termen.

Hab. Moleccas, type ♀ in Coll. Rothschild. *Exp.* 70 millim.

7469. *Speiredonia remota*. (Plate CCX. figs. 5 ♂, 6 ♀.)*Spirama remota*, Feld. Sitzb. Akad. Wiss. Wien, xliii. p. 43 (1861).*Spiramia funestis*, Butl. A. M. N. H. (5) xiii. p. 202 (1884).

♂. Head and thorax dark brown; palpi at base and in front of 2nd joint scarlet, coxæ and fringe of hair on femora scarlet; abdomen black-brown, the three terminal segments and ventral surface

scarlet. Fore wing black-brown, the terminal area tinged with grey; antemedial line indistinct, dark, excurved from costa to median nervure, then oblique; an inverted comma-shaped discoidal mark, defined by black-brown and by white scales on outer side of tail and inner side of head, the head filled in with dark brown; medial line very indistinct, excurved from costa round the discoidal mark, then incurved; an indistinct minutely waved postmedial line, excurved from costa to vein 4, then oblique; a rather diffused subterminal line from vein 7 to inner margin; a faint waved line before termen with a series of dark points on it. Hind wing dark brown, the terminal area greyish brown; faint dark antemedial, medial and postmedial lines. Underside of both wings brown with curved medial, slightly waved postmedial, and faint diffused subterminal lines.

♀. Thorax ochreous with brown bars near extremity of patagia; abdomen with the 1st three segments banded ochreous and black-brown dorsally, followed by spots on the two next segments; fore wing ochreous, the costal area tinged with grey-brown, some brown suffusion at middle of terminal area, antemedial line defined on inner side by whitish except towards costa, with black-brown patch on its outer side in submedian interspace and forking at inner margin, the head of discoidal mark larger, the medial and postmedial lines distinct, the latter with brown spot on its inner side above inner margin, the postmedial area crossed by a red-brown fascia with black streak below it from above the head of discoidal mark to beyond the postmedial line, a double subterminal line filled in with ochreous from vein 7 to inner margin, two slight white subapical streaks, two waved black lines before termen; hind wing ochreous, the medial, postmedial, and greater part of terminal area suffused with dark brown, a small dark discoidal spot, two diffused antemedial lines, a minutely waved medial line defined on outer side by a white band, a double subterminal line filled in with whitish, and two waved lines before termen; underside of both wings scarlet, fore wing with dark marks in middle of cell and on discocellulars, hind wing with dark discoidal spot; both wings with curved medial line, minutely waved postmedial line, diffused subterminal line, and series of points before termen.

Hab. AMBOINA (*H. O. Forbes*), Challenger Coll., 1 ♂, 1 ♀ type *funestis*. *Exp.* 68 millim.

7470. *Speiredonia calaoensis*. (Plate CCX. figs. 8 ♂, 9 ♀.)

Spirama kalaoensis, Swinh. A. M. N. H. (7) xiv. p. 423 (1904).

♂. Head and thorax dark brown; basal joint of palpi, coxæ, and the fringe of hair on femora scarlet; abdomen black-brown, the two terminal segments and ventral surface scarlet. Fore wing dark brown, the terminal area tinged with greyish; antemedial line very indistinct, dark, excurved from costa to median nervure, then oblique; an inverted comma-shaped discoidal mark, defined

by black-brown on inner side and outer side of head, otherwise slightly defined, and with a few white scales on outer side of tail and inner side of head, the head filled in with dark brown; traces of a dark medial line, excurved from costa round the discoidal mark, then oblique; a very indistinct waved postmedial line, excurved from costa to vein 4, then oblique; a very indistinct dark subterminal line. Hind wing with the basal half dark brown, the terminal half greyish brown; traces of dark antemedial, medial, and postmedial lines. Underside of both wings dark reddish brown; fore wing with faint dark spots in middle of cell and on discocellulars, and traces of curved medial, postmedial, and subterminal lines; hind wing with faint dark discoidal point and traces of curved medial, postmedial, and subterminal lines.

♀. Thorax ochreous white; abdomen ochreous white with slight brown segmental lines and the two terminal segments scarlet; fore wing ochreous white with some brown suffusion on inner medial area, on postmedial costal area, and on middle of terminal area, the lines and discoidal mark distinct, the medial line waved beyond the discoidal mark, a rather diffused double brown subterminal line filled in with white, and two waved brown lines before termen; hind wing ochreous white suffused in parts with brown, two diffused dark antemedial lines, a minutely waved medial line defined on outer side by white, a double subterminal line filled in with white and with black-brown suffusion before it; underside of both wings ochreous tinged with scarlet, fore wing with dark marks in middle of cell and on discocellulars, hind wing with dark discoidal point, both wings with waved postmedial line, diffused subterminal line, and series of points before termen.

Hab. FLORES, Kalao I., 1 ♂, 1 ♀ type. *Exp.* 66 millim.

7471. *Speiredonia indenta*.

Spiramia indenta, Hmps. Ill. Het. B.M. viii. p. 89, pl. 147. ff. 20, 21 (1891); id. *Moths Ind.* ii. p. 553.

♂. Head and tegulae chocolate-brown; thorax ochreous suffused with red-brown; palpi scarlet at base; some scarlet behind the eyes; legs grey-brown with the hair on coxæ and femora scarlet; abdomen scarlet, the 1st six segments with dorsal dark brown patches reduced in size towards extremity, the 2nd segment with an ochreous line, lateral series of small spots, and sublateral spots on terminal segments. Fore wing red-brown with some ochreous on postmedial area, the base and costal area greyish brown to beyond middle; antemedial line brown, excurved to median nervure, then oblique; an inverted comma-shaped discoidal mark, chocolate-brown defined by black with a grey line outside it, the outer edge of head more or less indented at veins 4, 3; medial line brown, excurved from costa round the discoidal mark and touching it, then incurved and double; postmedial line dark brown, oblique to vein 7, then inwardly oblique and slightly excurved above inner

margin where it is defined by greyish; an indistinct double waved subterminal line filled in with greyish and a slight waved line before termen. Hind wing with the basal half dark brown, the terminal half grey-brown; two indistinct diffused dark antemedial lines and a medial line, and traces of a postmedial and subterminal line. Underside of both wings scarlet suffused with brown; fore wing with dark discoidal spot and both wings with rather diffused medial, postmedial, and subterminal lines.

♀. Thorax ochreous with a slight red-brown line across metathorax; abdomen with the four basal segments dorsally banded ochreous and brown, the two following segments with dorsal brown patches. Fore wing ochreous with some red-brown suffusion beyond inner half of antemedial line, between the medial and postmedial lines on inner area and on terminal area, and a wedge-shaped patch from above the head of the discoidal mark, the medial line excurved well beyond the discoidal mark, then oblique, the postmedial line slight waved and with points on the veins below vein 5, the waved line before termen more distinct; hind wing ochreous, the postmedial and terminal areas suffused with red-brown, the two diffused antemedial lines distinct, a crenulate medial line defined on outer side by ochreous, a double subterminal line filled in with ochreous, the inner line diffused on inner side, two waved lines before termen; underside of both wings bright scarlet with small discoidal spots, the postmedial line minutely waved.

Ab. 1. ♂. Fore wing with the basal area greenish grey.

Hab. PUNJAB, Kulu, Sultanpur (*G. Young*), 4 ♀, Simla (*Harford*), 2 ♂, 1 ♀; ASSAM, Silhet, 2 ♀; MADRAS, Nilgiris (*Hampson*), 2 ♂, 2 ♀ type; CEYLON (*Lindesay*), 1 ♂; JAVA (*Horsfield*), 1 ♀. *Exp.* 66-80 millim.

7472. *Speiredonia triloba*.

Spirama triloba, Guen. Noct. iii. p. 197 (1852); Hmps. Moths Ind. ii. p. 553.

Hypopyra mollis, Guen. Noct. iii. p. 198 (1852).

Spirama modesta, Moore, Lep. Atk. p. 168 (1882).

Spirama confusa, Butl, Ill. Het. B.M. vii. p. 78, pl. 132. ff. 6-8 (1889).

♂. Head and tegulæ dark red-brown; thorax whitish tinged with red-brown; palpi scarlet at base; legs grey-brown, the hair on coxæ and femora scarlet; abdomen scarlet, the four basal segments with dorsal ochreous and dark brown bands, the three following segments with triangular dark brown dorsal patches, lateral series of small spots and sublateral spots on terminal segments. Fore wing pale reddish brown with an ochreous tinge, the base and costal area to beyond middle greyish, the inner medial area and terminal area browner; antemedial line slight, brown, excurved from costa to median nervure, then oblique; an obsolescent inverted comma-shaped discoidal mark, its tail slight, brownish, its head broken up into three greyish white spots with black-brown spots on the upper and lower ones; medial line slight, brown,

excurved from costa round the discoidal mark which it touches, then incurved; postmedial line obsolescent, brownish defined on outer side by ochreous and with dark spot at costa, oblique to below vein 7, then inwardly oblique; a waved ochreous subterminal line and traces of a waved brown line before termen. Hind wing with the basal half dark red-brown, the terminal half grey-brown; two indistinct medial lines and a very indistinct double subterminal line. Underside of both wings scarlet suffused with brown; fore wing with slight brown marks in middle of cell and on discocellulars and brown medial, postmedial, and subterminal lines; hind wing with antemedial, medial, and indistinctly double subterminal lines.

♀. Abdomen with the four basal segments dorsally ochreous with brown bands, the two following segments with brown spots; fore wing ochreous, the terminal area suffused with red-brown, the discoidal mark with the spots on head smaller, the medial line excurved well beyond it, the postmedial line reduced to points; hind wing ochreous, the terminal area suffused with red-brown, two diffused brown antemedial lines, a medial series of small brown spots with pale band beyond it, a prominent ochreous subterminal line with traces of a waved brown line beyond it; underside of both wings scarlet with curved medial, postmedial, and subterminal lines.

Ab. 1. *rosacea*, ♀. Wings tinged with flesh-pink; fore wing without black spots on the discoidal mark.

Hab. PUNJAB, Kulu, Sultanpur (*G. Young*), 2 ♂, 1 ♀, Dharm-sála (*Hocking*), 1 ♂, 4 ♀ type *rosacea*; SIKHIM (*Möller*), 1 ♂, 1 ♀; ASSAM, Silhet, 1 ♂, 3 ♀ type *modesta*; BENGAL, 1 ♀; MADRAS, Nilgiris (*Hampson*), 3 ♂, 2 ♀; JAVA (*Horsfield*), 1 ♀ type *mollis*. Exp. 58-84 millim.

7473. *Speiredonia martha*.

Hypopyra martha, Butl. A. M. N. H. (5) i. p. 292 (1878); id. Ill. Het.

B.M. ii. p. 41, pl. 34. f. 3.

Spirama ægrola, Butl. Trans. Ent. Soc. 1881, p. 197.

Head and tegulæ chocolate-brown, the thorax red-brown slightly mixed with grey; palpi scarlet at base; antennæ blackish; pectus and the hair on coxæ and femora scarlet; legs grey-brown; abdomen scarlet, the 1st three segments dorsally blackish brown and the four following segments with dorsal triangular black-brown patches. Fore wing grey-brown, the inner half of medial area and the terminal area suffused with red-brown with a slight olive tinge; antemedial line brown, excurved below costa, then oblique; the inverted comma-shaped discoidal mark represented by a chocolate-brown striga on upper discocellular and three minute grey spots beyond lower angle of cell; medial line brown, excurved from costa to vein 4, then oblique; postmedial line represented by a series of black points on the veins faintly defined on outer side by grey, excurved below costa, then oblique and slightly excurved above

inner margin; traces of a waved grey subterminal line. Hind wing red-brown with a faint olive tinge, the base and termen greyish; a diffused dark oblique antemedial line and oblique dark medial and subterminal lines defined on outer side by grey. Under-side of both wings scarlet thickly irrorated with fuscous; fore wing with dark spot in middle of cell and discoidal striga; hind wing with discoidal point; both wings with curved medial line, curved waved postmedial line, and curved subterminal line.

Ab. 1. ♂. Fore wing with large dark spot beyond lower angle of cell.

Ab. 2. ♂. Fore wing with the spot beyond lower angle of cell conjoined to the spot above it forming a bilobate mark, the upper spot separate.

Ab. 3. ♀. Thorax and wings more ochreous and less suffused with olive-brown.

Hab. JAPAN, Tokio (*Maries*), 1 ♂, 3 ♀ type *ægrotæ*, Nikko (*Maries*), 1 ♂, Yokohama (*Jonas*), 2 ♂, 1 ♀ type; C. CHINA, Kiukiang (*Pratt*), 1 ♀; W. CHINA, Omei-shan, 1 ♂; HONGKONG (*Leech*), 1 ♂ type. *Exp.* 68-84 millim.

Genus **COMETASTER**, nov.

Type, *C. pyrula*.

Proboscis fully developed; palpi upturned, the 2nd joint reaching to about middle of frons and rather broadly scaled, the 3rd short; frons smooth, with tuft of hair; eyes large, round; antennæ of male bipectinate to apex with rather long branches ending in a bristle; thorax clothed with hair and scales mixed and without crests; all the tibiæ spined, the fore tibiæ fringed with long hair on outer side, the mid and hind tibiæ smoothly scaled; abdomen without crests. Fore wing with the apex rounded, the termen evenly curved and slightly crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the cell about one-third length of areole, veins 3, 4 from angle of cell; 5 fully developed from just above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

7474. *Cometaster pyrula*.

Spirama pyrula, Hppfr. Mon. Königl. Akad. Wiss. Berl. 1857, p. 422; id.

Peters's Reise Mosamb. p. 435, pl. 28. ff. 10, 11.

Spirama lucida, Feld. Reis. Nov. pl. 113. f. 8 (1874).

Head and tegulæ brown mixed with some grey; thorax grey-white irrorated with brown; fore legs suffused with brown; abdomen grey-white dorsally thickly irrorated with dark brown and with dark brown segmental lines. Fore wing grey-white, the basal and costal areas irrorated with brown; the costal edge dark brown towards base; a slight oblique waved subbasal line from costa to submedian fold; antemedial line black-brown, slight and acutely angled outwards in upper angle of cell, then forming a narrow band, very oblique to inner margin near base where there are a few silvery blue scales on it; a large inverted comma-shaped discoidal mark, its centre black with some red-brown at middle, its

annulus a fine ochreous line strongly defined by black, with pale ochreous outside it except on outer side above; the medial area below the discoidal mark and beyond the antemedial band pale ochreous, the outer part of medial area with large quadrate red-brown patch on inner area suffused with black-brown on inner side and some red-brown suffusion above the discoidal mark; postmedial line dark brown, oblique from costa to vein 7, then obliquely curved to inner margin above which it is slightly excurved, with a faint waved line beyond it; a double curved minutely waved subterminal line filled in with ochreous; the terminal area suffused with red-brown and with dark streaks in the interspaces to the double waved dark terminal line; cilia ochreous. Hind wing greyish ochreous tinged with brown, the medial area suffused with brown except towards costa, the terminal area suffused with brown; a dark discoidal spot with the diffused antemedial line excurved beyond it;

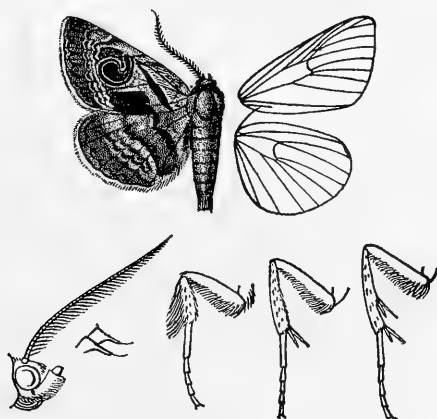


Fig. 71.—*Cometaster pyrula*, ♂. ♀.

medial line dark brown, minutely waved, bent outwards to inner margin; a double minutely waved postmedial line, the inner line obsolete from costa to vein 5; the terminal area with dark streaks in the interspaces to the double waved dark terminal line; cilia ochreous white. Underside of both wings ochreous; fore wing with slight dark streak in middle of cell and narrow dark-defined discoidal lunule, postmedial line obsolete towards costa and inner margin and with dark patch on its inner side between veins 5 and 3, a rather diffused curved subterminal line, series of black points before termen, and fine dark terminal line; hind wing with indistinct oblique antemedial line with the blackish discoidal spot on its outer edge, minutely waved postmedial line slightly excurved at vein 5, rather diffused subterminal line, series of slight black lunules before termen, and fine terminal line.

Hab. MOZAMBIQUE; BECHUANALAND, Lake N'gami (*Lugard*), 1 ♂, 1 ♀; NATAL, Estcourt (*Hutchinson*), 1 ♂, Maritzburg (*Burnup*), 1 ♀. *Exp.* 38-50 millim.

Genus **DONUCA.**

<i>Donuca</i> , Wlk. xxxiii. 925 (1865).....	Type. <i>spectabilis</i> .
<i>Eucyclomma</i> , Butl. Entom. xxvi. p. 292 (1893)	<i>castalia</i> .

Proboscis fully developed; palpi upturned, the 2nd joint reaching to vertex of head and moderately scaled, the 3rd short; frons smooth; eyes large, round; antennæ of male typically bipectinate with long branches to two-thirds length, the apex ciliated; thorax clothed with hair only and without crests; all the tibiæ spined, the fore femora and tibiæ fringed with long hair, the mid and hind tibiæ moderately fringed with hair; abdomen with some rough hair at base but without crests. Fore wing with the apex rounded, the termen evenly curved and slightly crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the cell less than half the length of wing; veins 3, 4 from angle of cell; 5 fully developed from just above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

SECT. I. Antennæ of male bipectinate with long branches to two-thirds length.

- A. Abdomen crimson at sides *castalia*.
- B. Abdomen with the terminal segments yellow.
 - a. Hind wing without white apical patch *xanthopyga*.
 - b. Hind wing with white apical patch.
 - a¹. Coxæ and fore femora and tibiæ on inner side clothed with crimson and yellow hair *spectabilis*.
 - b¹. Legs without crimson and yellow hair *memorabilis*.

7475. *Donuca castalia*. (Plate CCX. fig. 10.)

Bombyx castalia, Fabr. Syst. Ent. p. 559 (1775).

Calliodes saturator, Wlk. xiv. 1318 (1858).

Head and thorax deep red-brown, the latter irrorated with white; antennæ brownish white in male; pectus brownish white; legs brown, the fore femora and hind femora at extremities fringed with crimson hair, the tibiæ at extremities and tarsi ringed with white; abdomen crimson with dorsal brown patch slightly irrorated with white, broad at base and narrowing to penultimate segment, the extremity ochreous in male, brown in female, the ventral surface ochreous white with sublateral series of black spots. Fore wing red-brown tinged with purple and irrorated with bluish white, the terminal area paler; a dark subbasal line, excurved below costa and ending at submedian fold; the antemedial area with a dark shade; antemedial line dark brown, oblique, waved; a round discoidal ocellus, olive-green defined by black, its centre with trifid black mark defined on inner side by silvery blue; an oblique rather diffused brown medial line; postmedial line brown defined on outer side by whitish and white points at the veins, slightly excurved at vein 7, then minutely waved, oblique below vein 4 and angled

inwards at vein 2; subterminal line indistinctly double and rather diffused, oblique and minutely waved; two waved black-brown lines just before termen, the outer with series of white points on its outer side in the interspaces. Hind wing red-brown with a slight purplish tinge, suffused with dark brown and irrorated with bluish white except on costal and terminal areas, the cell and costal area whitish to beyond middle, the inner area whitish; a dark brown discoidal lunule with shade from it to inner margin; a dark minutely waved medial line defined on outer side by white points on the veins, obsolete on costal area; subterminal line double filled in with grey, rather diffused and minutely waved, slightly angled outwards below vein 6 and ending at tornus; two waved black-brown lines just before termen, the outer with white points on its outer edge in the interspaces. Underside of both wings white, the costal area tinged with brown, the terminal area brown, large black discoidal spots with bluish white centres, round on fore wing, elliptical on hind wing, a slight curved minutely waved postmedial line, the inner edge of the brown area defined by black-brown, diffused towards costa of fore wing and towards costa and below vein 3 of hind wing, a series of minute dark lunules just before termen.

Hab. QUEENSLAND, Brisbane (*Lucas, Turner, Lyell*), 3 ♂, 2 ♀, Moreton Bay (*Diggles*), 3 ♂, 1 ♂, type *saturation*. *Exp.* 60-66 millim.

***7476. *Donuca xanthopyga*. (Plate CCX. fig. 11.)**

Calliodes xanthopyga, Turner, P. Linn. Soc. N.S.W. xxxiv. p. 345 (1909).

♂. Head and tegulae bright rufous; thorax red-brown mixed with some grey; palpi and pectus yellowish, abdomen with the basal half of dorsum fuscous, the terminal half and ventral surface orange-yellow, the anal tuft black at base, sublateral series of black spots. Fore wing with the basal area whitish suffused with red-brown, the medial area dark brown, the terminal area whitish suffused and irrorated with red-brown; a waved black subbasal line from costa to submedian fold, the area before it rather darker; antemedial line blackish, excurved and rather diffused from costa to below the cell, then oblique and sinuous; a large elliptical greyish discoidal ocellus, defined by black and with bilobate black mark in centre, an incurved dark bar from it to costa; postmedial line brown, defined on outer side by white and on inner side between veins 6 and 2, incurved from costa to vein 6, then minutely waved, obliquely excurved to vein 2, then erect; subterminal line whitish, defined on inner side by slight dentate dark marks and by a greyish patch on costal area, oblique, minutely dentate and slightly bent outwards to inner margin, an oblique yellowish white patch beyond it from apex; a double strongly crenulate brown terminal line; cilia with slight whitish points at the veins. Hind wing with the basal area black-brown, its outer edge slightly

sinuous, the medial area white tinged with rufous except towards basal area, the terminal area red-brown; postmedial line formed of small dentate brown marks slightly defined by whitish on outer side; a double strongly crenulate dark terminal line with pale patch before it below apex; cilia with whitish points at base and tips. Underside ochreous yellow, the terminal area suffused with brown, large elliptical black discoidal spots; fore wing with oblique dentate postmedial line from costa to vein 5; hind wing with blackish patch on inner basal area and curved minutely waved postmedial line.

Hab. QUEENSLAND, Ingham, type \dagger ♂ in Coll. Turner. *Exp.* 66 millim.

7477. *Donuca spectabilis*.

Donuca spectabilis, Wlk. xxxiii. 926 (1865).

♂. Head and thorax dark chocolate-brown irrorated with white; the coxæ, fore femora and fore tibiæ on inner side clothed with crimson and yellow hair, the tarsi ringed with white; abdomen dark brown, the three terminal segments orange, the anal tuft brown, the ventral surface with the three terminal segments orange



Fig. 72.—*Donuca spectabilis*, ♂. 1.

or orange-red with dark segmental lines. Fore wing dark brown irrorated with bluish white and with some white suffusion beyond end of cell, the terminal area redder brown; a waved blackish sub-basal line from costa to submedian fold; the antemedial area with an oblique dark shade; antemedial line blackish, oblique, waved;

an elliptical red-brown discoidal ocellus defined by black, its centre with a trifold black mark defined on inner side by leaden grey, placed on a dark medial shade incurved below vein 2; postmedial line indistinct, blackish, dentate, oblique from costa to vein 4, then incurved; subterminal line blackish, slightly defined on outer side by white towards costa, angled inwards below costa and outwards above vein 6, then minutely waved and bent outwards to tornus; two waved black lines before termen; cilia with a dark line through them. Hind wing black-brown; a broad curved medial yellowish white band from costa to submedian fold, with three white striæ from its lower extremity to below vein 1; a yellowish white apical patch with an indistinct dentate dark line from it to submedian fold, defined on outer side by reddish brown and with some slight reddish-brown marks before it towards the fold; cilia with a fine pale line at base, white at the apical patch. Underside of fore wing with broad yellowish white band from costa beyond middle to inner margin and termen towards tornus, met by a wedge-shaped white area from base of costa extending at extremity to below the cell and with the elliptical dark discoidal spot on it, the outer edge of the band minutely waved, the rest of wing dark brown; hind wing dark brown with broad curved yellowish white medial band from vein 8 to submedian fold, its inner edge sinuous, and apical yellowish white patch.

♀. Fore wing without white suffusion beyond the cell, the discoidal ocellus, postmedial and subterminal lines defined on outer side by red-brown; underside of fore wing with the wedge-shaped whitish patch replaced by the costal area and a spot before the discoidal patch being whitish.

Ab. 1. ♀. Head, thorax, and fore wing suffused and irrorated with white, the last with the inner medial area darker.—Sherlock R.

Ab. 2. ♂. Hind wing on underside with the white medial band hardly extending above vein 7.—Queensland.

Hab. QUEENSLAND, 1 ♂; W. AUSTRALIA (*Diggles, Du Boulay*), 2 ♂, 1 ♀ type, Sherlock R. (*Clements*), 1 ♂, 1 ♀. *Exp.* 52-68 millim.

7478. *Donuca memorabilis*. (Plate CCX. fig. 12.)

Donuca memorabilis, Wlk. xxxiii, 926 (1865).

Head and thorax dark brown mixed with some white; antennæ with the basal joint white at sides; tibiæ at extremities and tarsi ringed with white; abdomen dark brown with slight whitish segmental lines, the two, or three, terminal segments yellow, the anal tuft brown, the ventral surface with yellow bands on three or four terminal segments. Fore wing dark red-brown irrorated with white and with white suffusion beyond the cell between veins 7 and 2; an oblique waved blackish subbasal line from costa to submedian fold; a dark shade on antemedial area; antemedial line blackish, oblique, waved; an elliptical red-brown

discoïdal ocellus, defined by black and with black lunule in centre, placed on the black-brown medial shade, incurved below the cell; postmedial line black-brown defined on outer side by white, dentate, strongly incurved below vein 4; a dentate blackish subterminal line diffused on inner side, angled inwards below costa and outwards below vein 7, then oblique and bent outwards to tornus; a dentate blackish line before termen; a waved blackish terminal line. Hind wing dark brown; a broad curved yellowish white medial band from costa to submedian fold with three white striæ from its lower extremity to below vein 1; a yellowish white apical patch with indistinct dentate dark line before termen from it to tornus towards which it is slightly defined on inner side by yellowish, on outer side by greyish; cilia with whitish line at base and intersected with whitish at the veins. Underside of fore wing brown with yellowish white patch in end of cell and broad oblique band beyond the cell from costa to tornus; hind wing with white streak in cell, the curved medial band and apical patch as above, a small white patch on termen below vein 2.

Hab. QUEENSLAND, Brisbane (*Turner*), 2 ♂, 1 ♀, Dawson R. (*Diggles*), 1 ♂, 1 ♀ type. *Exp.* 60-70 millim.

SECT. II. Antennæ of male bipectinate with short branches ending in a long bristle.

7479. *Donuca orbigera*.

Calliodes orbigera, Guen. Noct. iii. p. 193 (1852).

Head dark greyish brown, the palpi paler with some crimson at base, the antennæ fulvous except the shaft towards base; tegulæ red-brown with a dark band behind them; thorax ochreous white with some dark brown on dorsum; pectus yellowish, the legs grey-brown with the fringes of hair crimson; abdomen orange-yellow with dorsal dark brown and yellowish white bands on three basal segments, the ventral surface tinged with crimson. Fore wing olive-brown suffused in parts with dark brown, the costal area greyish white tinged with brown towards apex; an oblique yellowish white band from middle of cell to inner margin near base defined at sides by dark brown suffusion; a round discoïdal ocellus with black-brown centre with some silvery blue near its inner edge and yellowish white annulus defined by black; an oblique yellowish white band from vein 7 towards apex to middle of inner margin, defined on inner side by a dark brown line which reaches the costa and with a slight oblique white mark from its upper extremity to near apex, some dark brown beyond it between veins 6 and 4 and below vein 2 and some white irroration between these dark markings; an oblique yellowish white subterminal line from vein 7 to inner margin interrupted by dark streaks on the veins and with a waved blackish line beyond it extending to below apex; a dark terminal line; cilia yellowish white, olive-brown at base. Hind

wing olive-brown suffused in parts with dark brown, the inner area yellow; a dark subbasal line; an oblique yellowish white medial band defined on inner side by dark brown, from costa to vein 1, the veins beyond it with dark streaks and some dark suffusion at discal fold with some white irroration below it; a narrow yellowish white postmedial band interrupted by dark streaks on the veins and with a waved blackish line beyond it; a blackish terminal line; cilia yellowish white. Underside of both wings ochreous tinged with

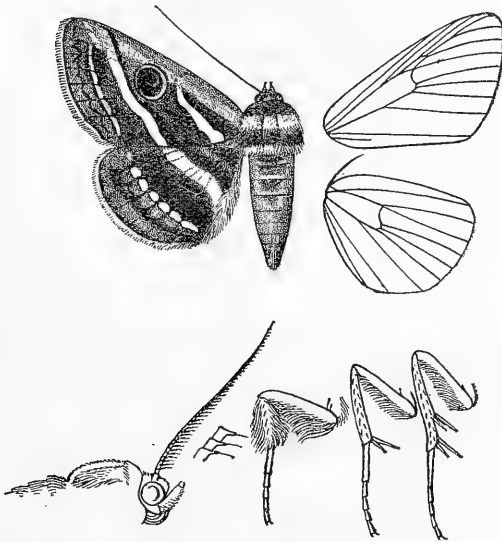


Fig. 73.—*Donuca orbigera*, ♂. 1.

red-brown, the terminal area suffused with olive-brown; fore wing with round black-brown discoidal spot with yellow lunule and streaks on the veins on it, a dark mark on inner area before tornus with some yellowish beyond it, and a subterminal series of slight dark points; hind wing with black-brown discoidal spot, slight curved postmedial line, and two dark subterminal shades, the inner obsolescent on costal half, with yellow spots between them towards tornus.

Hab. QUEENSLAND, Brisbane (*Turner*), 3 ♂, 2 ♀, Moreton Bay (*Diggles*), 2 ♂, Cairns (*de la Garde*), 1 ♂; N. AUSTRALIA, Baudin I. (*J. J. Walker*), 1 ♂, Port Darwin (*Buckland*), 1 ♀, Alexandria (*Stalker*), 1 ♂; W. AUSTRALIA, Sherlock R. (*Clements*), 2 ♂, 1 ♀. *Exp.* 54-72 millim.

SECT. III. Antennæ of male with serrations and long bristles.

- A. Abdomen except towards base and inner margin of hind wing towards tornus crimson *rubropicta*.
 B. Abdomen except towards base yellow; hind wing without crimson hair on inner margin *lanipes*.

7480. *Donuca rubropicta*. (Plate CCX. fig. 13.)

Calliodes rubropicta, Butl. Ent. Mo. Mag. xi. p. 77 (1874).

Head dark brown, black-brown behind; palpi reddish brown; tegulæ black-brown at base and tips, reddish brown at middle; thorax reddish brown in front, then black-brown with a yellowish white band behind; pectus reddish brown, the fore legs darker brown; abdomen crimson with black-brown dorsal patch from base to 6th segment, tapering to small spots at extremity and with slight ochreous segmental lines on three basal segments, the ventral surface reddish brown with blackish segmental lines and wedge-shaped lateral patches. Fore wing reddish brown; an obliquely curved yellowish white band from middle of cell to base of inner margin, tapering above and broadly defined at sides by black-brown, an oblique dark wedge-shaped spot above its extremity from costa; a large rather irregularly elliptical discoidal ocellus defined by black with yellow outside it except above, its centre olive-brown with round black patch in its upper part with silvery blue near its inner edge and some yellowish white above it; a slight blackish line from costa beyond middle, incurved below costa, then excurved and faint round lower part of the ocellus, then incurved and oblique to inner margin before middle; a broad oblique yellowish white band from apex to inner margin just beyond middle, slightly dilated at vein 6 and with black-brown suffusion before it except at middle; a slight yellowish subterminal line from the band at vein 6 to inner margin, incurved below vein 4 and excurved above and below that point, with black-brown suffusion before it, narrow at middle; two black-brown lines before termen, the inner not extending above vein 7 and slightly dilated between veins 4 and 2; cilia with a dark line at base, yellowish white at apex. Hind wing dark reddish brown, the inner area crimson towards tornus; a blackish subbasal line; a broad yellowish white medial band from costa to the crimson inner area, defined on inner side by blackish; a slight yellowish post-medial line, incurved below vein 4 and excurved above and below that point, with black-brown suffusion before it irrorated with a few yellow scales; a black subterminal line, slightly incurved below vein 4; a black terminal line diffused inwardly below vein 4; cilia white, tinged with brown except towards apex. Underside of fore wing pale red-brown, the terminal area darker, the inner area crimson except towards tornus; a small black spot in middle of cell and large round black discoidal spot with yellowish white beyond it in the interspaces, postmedial line brown, arising at vein 7, oblique and slightly waved from vein 5 to the crimson area, a dark subterminal shade; hind wing dark reddish brown, the inner area crimson except at base, a diffused black-brown discoidal

spot with slight curved line beyond it except on inner area, a strong dark brown postmedial line except on inner area, obtusely angled outwards at discal fold, with a yellowish white patch before it beyond the cell and small yellowish white spots beyond it, two indistinct dark subterminal lines.

Hab. QUEENSLAND, 1 ♂, Kuranda (*Simmonds*), 1 ♂, Brisbane (*Lucas, Turner*), 7 ♂, 2 ♀, Moreton Bay (*Diggles*), 1 ♂ type. *Exp.* 66-80 millim.

7481. *Donuca lanipes*.

Calliodes lanipes, Butl. Ent. Mo. Mag. xiv. p. 109 (1877); Waterhouse, Aid, i. pl. 48; Pagenstecher, Semon's Forschungsreise, v. pl. 13. f. 11.

Head and thorax dark olive-brown, the head with a bluish gloss, a yellowish line behind the tegulæ; palpi with some yellow at base

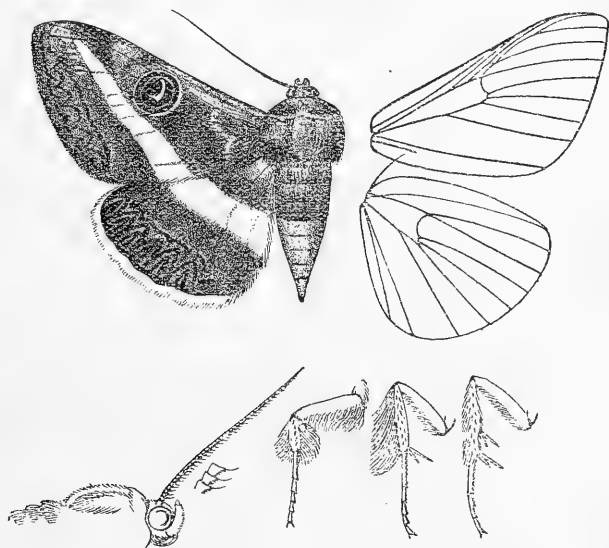


Fig. 74.—*Donuca lanipes*, ♂. $\frac{1}{2}$.

and yellowish white in front; pectus yellow; legs brownish, the fringes of hair on fore legs yellow, the fore tarsi dark brown; abdomen with the 1st three segments olive-brown, the other segments yellow with some brownish in anal tuft, lateral series of black-brown spots. Fore wing dark olive-brown with a brassy green gloss on costal area to beyond middle, beyond the ocellus and on terminal area except towards apex; a faint oblique sinuous brassy green antemedial line; a round discoidal ocellus with dark brown centre with silvery blue lunule on it and slight yellow annulus defined by black with whitish beyond it; an oblique white

band from vein 7 towards apex where it narrows to a point to inner margin just beyond middle, some yellow beyond it from vein 5 to apex with a series of small white spots on each side of the veins; a black subterminal line from vein 7 to inner margin, with a black line beyond it, dentate except towards costa to which it is bent inwards; a black terminal line slightly angled inwards at the veins. Hind wing dark olive-brown, the terminal area suffused with brassy green; a broad oblique white medial band; a slightly curved dark subterminal line with very highly crenulate black line beyond it, dentate to termen at the veins and with series of black Y-shaped marks in its indentations; a black terminal line; cilia pure white. Underside of both wings paler olive-brown; fore wing with elliptical dark brown discoidal spot with white lunule near its inner edge, a very broad curved white postmedial band and white apical patch; hind wing with white medial band, narrowing to costa, its outer edge strongly excurved at discal fold, some white at apex.

Hab. QUEENSLAND (*Waller*), 1 ♀, Brisbane (*Turner*), 1 ♂, 1 ♀; N. AUSTRALIA, Port Darwin (*Buckland*), 1 ♀. *Exp.* 78-80 millim.

Genus NIGUZA.

	Type.
<i>Niguz</i> , Wlk. xv. 1855 (1858)	<i>spiramioides</i> .
<i>Acanthocoles</i> , Turner, Tr. R. Soc. S. Austr. xxvii. p. 25 (1903)	<i>eucesta</i> .

Proboscis fully developed; palpi upturned, the 2nd joint reaching to middle of frons and moderately scaled, the 3rd minute; frons smooth, with tuft of hair above; eyes large, round; antennæ of male serrate and fasciculate; thorax clothed with hair only and without crests; fore tibiæ typically short, strongly spined and with three curved claws at extremity, the mid and hind tibiæ spined, the tibiæ fringed on outer side with long hair; abdomen without crests. Fore wing with the apex rounded, the termen evenly curved, crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the cell half the length of wing; veins 3, 4 from angle of cell; 5 fully developed from above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

SECT. I. Fore tibiæ very short and broad, strongly spined, with two long curved claws on outer side at extremity and two on inner side.

7482. *Niguz anisogramma*.

Niguz anisogramma, Lower, Tr. R. Soc. S. Austr. xxix. p. 174 (1905).

♂. Head and thorax red-brown with a white band behind the tegulæ; pectus white except in front; mid and hind legs brown with white mixed; abdomen pale scarlet, the 1st segment white, the three following segments with dorsal brown patches, the ventral surface white with lateral series of brown spots. Fore wing red-brown; some white at base of inner margin; subbasal orange-yellow marks below costa and cell; a white antemedial band, excurved below costa, then oblique and slightly sinuous; claviform white, elliptical, with brown spot in centre; a yellow discoidal ocellus defined by black, and with leaden-blue and fuscous brown lunulate

mark in centre, the ocellus defined except above by a white ring confluent with the white postmedial band, which is slightly bent outwards to costa and obliquely incurved below vein 5, followed by a series of orange spots defined on inner side by silvery whitish, the two spots below costa with dentate silvery white marks beyond them and the spots above and below vein 6 with dentate blackish marks beyond them; a subterminal series of white spots in the interspaces; a narrow waved white terminal band defined by brown lines; cilia white tinged with brown. Hind wing white, the inner margin tinged with brown; a brown discoidal spot with band from it to vein 1 along which it runs inwards as a dentate mark; the terminal area brown, narrowing to tornus and its inner edge incurved below vein 4, a subterminal series of orange spots on it followed by a

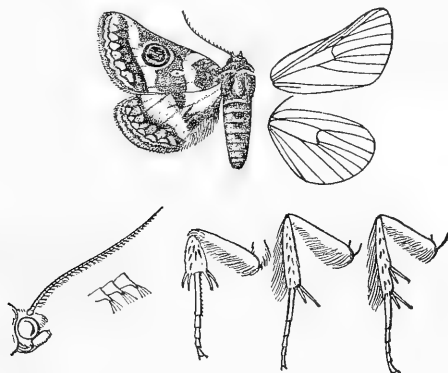


Fig. 75.—*Niguza anisogramma*, ♂. 1.

series of white spots, a narrow sinuous whitish band before the terminal brown line; cilia brownish white. Underside of both wings white, large brown discoidal spots followed by brownish bars from costa, a sinuous brown subterminal line and brown lines before and on termen.

Hab. W. AUSTRALIA, Sherlock R. (*Clements*), 2 ♂. *Exp.* 36–40 millim. Type † in Coll. Lower.

SECT. II. Fore tibiae rather short with three curved claws at extremity.

- | | |
|--|-----------------------|
| A. Wings yellowish suffused with crimson | <i>eucesta</i> . |
| B. Wings pale red-brown | <i>spiramioides</i> . |

*7483. ***Niguza eucesta*.** (Plate CCX. fig. 7.)

Acanthocoles eucesta, Turner, Tr. R. Soc. S. Austr. xxvii. p. 23 (1909)

♀. Head and thorax ochreous tinged with crimson, a bar above frons and vertex of head brown; tegulae tipped with brown; abdomen pale ochreous. Fore wing creamy yellow suffused with

crimson especially on inner area; a slight black subbasal line from costa to submedian fold; a strong oblique black antemedial line bent inwards to costa; a large elliptical discoidal ocellus extending to submedian fold, its centre olive-brown with black patch in upper part and some raised silvery white scales on the veins, and with creamy annulus defined below by olive-brown then by a black ring, strongest below; postmedial line black, very oblique from costa to vein 7, then dentate, slightly incurved below vein 2, and followed by a strong white-irrorated black dentate slightly curved subterminal line; two fine highly waved black lines just before termen. Hind wing yellowish suffused with crimson; a minutely waved black postmedial line followed by a lunulate band suffused with blue; two highly waved fine black lines just before termen. Underside yellowish; fore wing with black discoidal patch and subterminal waved line expanding into conjoined spots below costa; hind wing with black postmedial band with waved outer edge.

Hab. N. S. WALES, Cobar, type† in Coll. Turner. *Exp.* 48 millim.

7484. *Niguza spiramioides*.

Niguza spiramioides, Wlk. xv. 1855 (1858).

Head, thorax, and abdomen ochreous suffused with pale red-brown; tegulæ edged with fuscous, the abdomen with faint dark

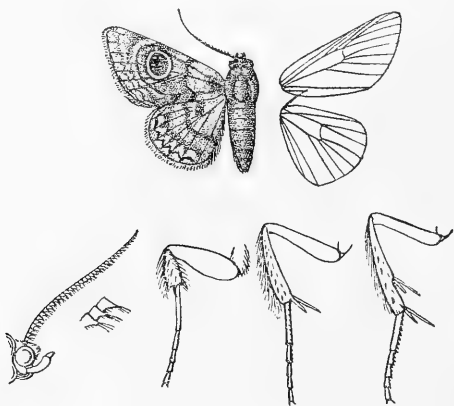


Fig. 76.—*Niguza spiramioides*, ♂. 1.

segmental lines, the ventral surface whitish. Fore wing ochreous suffused with red-brown; a faint dark subbasal line from costa to submedian fold; antemedial line fuscous, excurved in submedian interspace; a large round discoidal ocellus, yellow defined by fuscous, its centre black above, red-brown below with series of white points on the veins; medial line fuscous, excurved from costa round the ocellus to vein 1, then erect to inner margin; postmedial line fuscous, diffused on inner side to vein 6, angled outwards at vein 7,

then dentate; a highly waved blackish subterminal line and slightly waved terminal line. Hind wing ochreous suffused with red-brown; an oblique elliptical blackish discoidal spot, curved medial line, rather diffused postmedial line with its outer edge dentate, highly waved subterminal line, and a terminal line. Underside of both wings ochreous white with large black discoidal spots and curved brownish postmedial line; fore wing with black subapical patches above and below vein 7; hind wing with blackish subterminal patches below vein 7 and above tornus connected by a slight dentate line; both wings with a waved line before termen.

Hab. N. AUSTRALIA (*Elsey*), 1 ♂, 3 ♀ type. *Exp.* ♂ 40; ♀ 50 millim.

SECT. III. Fore tibiae of normal length, slightly spined.

7485. *Niguza oculita*.

Niguza oculita, Swinh. A. M. N. H. (7) viii. p. 133 (1901).

Head and tegulae pale red-brown; thorax and abdomen ochreous faintly tinged with red-brown. Fore wing ochreous tinged with red-brown, the terminal area suffused with red-brown; a rather diffused red-brown antemedial line, excurved from costa to submedian fold, then erect; a yellow discoidal ocellus defined by black edged with white except above, its centre with elliptical black spot

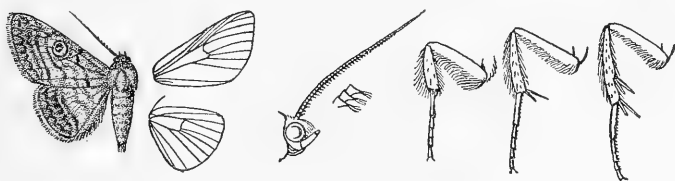


Fig. 77.—*Niguza oculita*, ♂. 1.

with some grey on its inner edge, the white edge of the ocellus slightly defined by red-brown on its inner side and with an indistinct red-brown line from its lower edge bent inwards to submedian fold and slightly excurved at vein 1; a red-brown medial line, excurved from costa beyond the ocellus to submedian fold, then erect; postmedial line double, dark brown, slightly oblique, the inner line arising at vein 6 and with white points between it and costa, the outer line arising at vein 7; a dentate dark brown subterminal line, bent inwards to costa; a dark brown terminal line. Hind wing ochreous tinged with red-brown, the terminal area suffused with red-brown; a red-brown medial line, excurved at middle, then oblique; a double dark brown postmedial line

ending at tornus, the outer line slightly dentate, a dentate dark brown subterminal line and dark brown terminal line. Underside of both wings ochreous, the terminal area suffused with red-brown, discoidal spots black-brown, large on fore wing.

Hab. W. AUSTRALIA, Sherlock R. (*Clements*), 1 ♂, 2 ♀. *Exp.* 36-44 millim. Type † in Mus. Oxon.

Genus **AMPHORACERAS.**

Type.

Amphoraceras, Beth.-Baker, Nov. Zool. xi. p. 427 (1904)..... *rothschildi*.

Proboscis fully developed; palpi upturned to well above vertex of head, the 2nd joint very thickly fringed with hair, the 3rd dilated into a rounded knob; frons and vertex of head tufted with hair; antennæ of male with the shaft very strongly dilated at base and with fringe of hair curled over on upperside forming an ear-like structure, the terminal part of shaft ciliated; thorax clothed with hair and hair-like scales, the pro- and metathorax with crests; pectus and femora thickly clothed with hair; mid tibiæ strongly spined, hind tibiæ with a few spines between the spurs; abdomen dorsally clothed with long hair on basal half and with thick crests on 1st two segments. Fore wing with the apex produced and acute, the termen obliquely curved, the inner margin strongly curved; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the long areole; 11 from cell; the underside in male with the cell clothed with long hair and the disk with fringes of rough hair. Hind wing with the cell less than half the length of wing; veins 3, 4 from angle; 5 from just above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

*7486. *Amphoraceras rothschildi*.

Amphoraceras rothschildi, Beth.-Baker, Nov. Zool. xi. p. 428, pl. v. f. 1 (1904).

♂. Head and tegulæ rufous, paler in front; thorax grey mixed with rufous, the metathoracic crest rufous and black; pectus orange; legs brown towards extremity; abdomen orange with large dorsal black patch extending to beyond middle, the crests greyish. Fore wing greyish sparsely irrorated with black and suffused with rufous especially beyond the postmedial line below vein 5; the veins of terminal area streaked with greenish; subbasal line slight, waved, from costa to submedian fold; antemedial line rufous, indistinctly triple filled in with violaceous, excurved, but incurved in cell; orbicular black with pale purplish annulus; reniform violaceous grey with rather irregular black outline and five black spots in its centre, some dark grey suffusion between and below the stigmata; postmedial line double, indistinct, diffused and oblique from costa to vein 6, then triple, rufous filled in with violaceous, very oblique, somewhat sinuous below vein 2 and connected with the antemedial line at vein 1 and inner margin, a slight black streak beyond it above vein 5; a semicircular dark rufous patch on costa towards apex; a subterminal series of small rufous spots. Hind wing with

the basal half black-brown, the terminal half orange-yellow. Under-side orange-yellow with the terminal area of fore wing and the hind wing irrorated with fuscous.

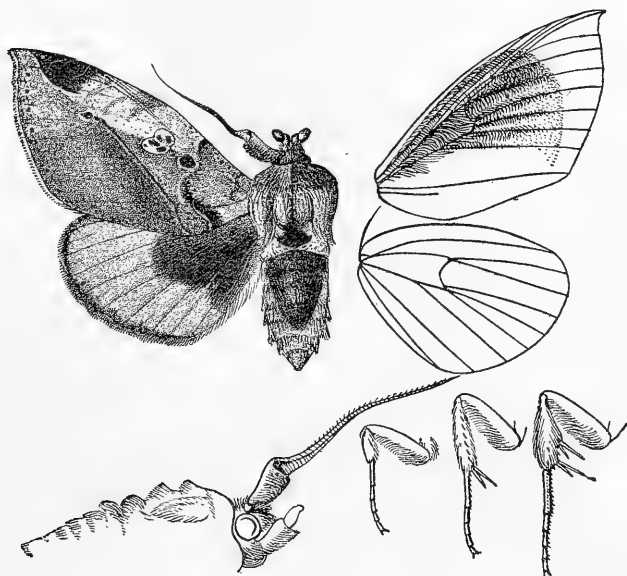


Fig. 78.—*Amphoraceras rothschildi*, ♂. ♀.

Hab. BR. N. GUINEA, Dinawa, 4000 ft. (*Pratt*), type ♀ in Coll. Bethune-Baker. *Exp.* 80 millim.

Genus **CTENUSA.**

Ctenusa, Hmps. P. Z. S. 1910, p. 422..... Type. *carnicolor*.

Proboscis fully developed; palpi upturned, the 2nd joint reaching to vertex of head and moderately fringed with hair in front, the 3rd moderate, oblique; frons smooth; eyes large, round; antennæ of male bipectinate with moderate branches, the apex simple; thorax clothed with hair only and without crests; tibiæ moderately fringed with hair, the mid and hind tibiæ strongly spined; abdomen without crests. Fore wing broad, the apex rectangular, the termen evenly curved, crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the termen produced to a slight lobe at vein 4; the cell nearly half the length of wing; veins 3, 4 from angle; 5 from just above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

SECT. I. Antennæ of male with the branches long on both sides.

- A. Fore wing with the subterminal line curved..... *curvilinea*.
- B. Fore wing with the subterminal line almost straight.
 - a. Both wings with distinct waved postmedial line *rufirena*.
 - b. Fore wing with the postmedial line reduced to points, hind wing with it almost obsolete.
 - a¹. Fore wing with bright rufous band before subterminal line *carnicolor*.
 - b¹. Fore wing without rufous band before subterminal line *pallida*.

7487. *Ctenusa curvilinea*, n. sp. (Plate CCXI. fig. 1.)

♀. Head and thorax ochreous, the head slightly tinged with red-brown, the tegulæ strongly suffused with red-brown; antennæ brown, the shaft ochreous white above towards base; fore and mid legs suffused with red-brown; abdomen pale ochreous faintly tinged with red-brown. Fore wing pale ochreous irrorated with brown, the terminal area suffused with red-brown; antemedial line slight, red-brown, excurved to median nervure, then oblique and with dark points on median nervure and vein 1; an oblique black-brown discoidal bar, almost conjoined to an oblique black bar from costa from which arises the faint brown medial shade, excurved beyond the cell, then oblique; postmedial line with small black spot at costa, then slight, brown, excurved, waved, and with black points at the veins; subterminal line ochreous, slightly defined at sides by brown, obliquely excurved and ending at tornus; traces of a series of minute brown spots before termen. Hind wing ochreous white; a faint curved brown postmedial line from vein 5 to 1 with slight dark points at the veins; the terminal area suffused with pale red-brown, with traces of a pale obliquely curved subterminal line ending at tornus, and of a series of brown points before termen. Underside of both wings ochreous white with a curved brown subterminal shade, the area beyond it tinged with red-brown.

Ab. 1. Fore wing with the ante- and postmedial lines almost obsolete, the medial black mark on costa small and the medial shade obsolete; hind wing with the postmedial line obsolete.

Hab. ABYSSINIA, Taddecha Mullka (*Degen*), 2 ♀ type. *Exp.* 42-46 millim.

7488. *Ctenusa rufirena*.

Ctenusa rufirena, Hmps. P. Z. S. 1910, p. 423, pl. xxxvii. f. 12.

♀. Head fiery red, the vertex and tegulæ chocolate-brown; palpi with dark line at sides; thorax and abdomen yellow tinged with rufous; the pectus in front and fringes of hair on fore legs fiery red, the fore tibiæ and tarsi fuscous in front, the former irrorated with white. Fore wing yellow tinged with rufous and irrorated with fuscous; antemedial line indistinct, red, slightly defined on inner side by yellow, curved; reniform rufous defined

by yellow, an oblique red striga above it from costa; postmedial line red slightly defined on outer side by yellow and with dark striga from costa, excurved below costa, then waved; subterminal line yellow, almost straight; a series of slight red points before termen; cilia red with fine yellow lines at base and middle. Hind wing yellow tinged with rufous and irrorated with fuscous, the costal area whitish to beyond middle; a minutely waved fuscous postmedial line; a faint broad fuscous subterminal shade; cilia with fine yellow lines at base and middle. Underside of fore wing with blackish discoidal striga, hind wing with point, both wings with fuscous subterminal shade.

Hab. N.W. RHODESIA, Alala Plateau, Ndola Distr. (*Neave*), 1 ♀ type. *Exp.* 54 millim.

7489. *Ctenusa carnicolor*.

Chalciope carnicolor, Hmps. Ann. S. Afr. Mus. ii. p. 329 (1902).

♂. Head and tegulæ rufous; antennæ whitish, tinged with brown except towards base; thorax pale ochreous yellow tinged with rufous; abdomen ochreous white. Fore wing pale yellow suffused with rufous; slight subbasal dark points below costa and

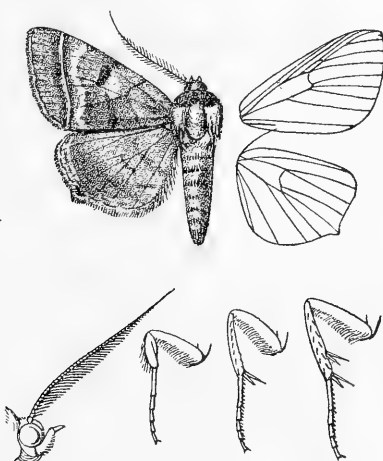


Fig. 79.—*Ctenusa carnicolor*, ♂. 1.

cell; antemedial line defined on inner side by pale yellow, rufous and oblique from costa to middle of cell, then inwardly oblique and represented by black points on median nervure and vein 1; an elliptical red-brown discoidal spot; medial line red-brown, oblique to the discoidal spot, indistinct and incurved below it; postmedial line defined on outer side by pale yellow, with red-

brown spot at costa, then represented by a series of points on the veins, excurved to vein 5, then incurved and angled outwards at submedian fold; subterminal line white, almost straight, defined on inner side by bright red-brown suffusion and on outer except towards costa by purplish grey with slight dark streaks in the interspaces; a series of slight brown points before termen; a terminal series of brown striæ and a fine pale line at base of cilia. Hind wing ochreous white, the terminal area suffused with rufous; a faint sinuous brown medial line from lower angle of cell to inner margin; a faint waved brown postmedial line from discal fold to inner margin with dark points at the veins, excurved at submedian interspace; a faint pale subterminal line from discal fold to tornus; a series of brown striæ before termen defined by whitish; a fine brown terminal line and a spot on the lobe at vein 4; the underside white, the costal area slightly tinged with rufous, the terminal area suffused with rufous.

Hab. DAMARALAND, 1 ♂ type. *Exp.* 50 millim.

7490. *Ctenusa pallida*. (Plate CCXI. fig. 3.)

Calliodes pallida, Hmps. Ann. S. Afr. Mus. ii. p. 321 (1902).

♂. Head rufous; antennæ and tegulæ brown; thorax and abdomen pale ochreous slightly tinged with rufous; fore legs rufous, the hind tibiæ and tarsi brown above. Fore wing pale ochreous faintly tinged with rufous and irrorated with brown; an oblique elliptical brown discoidal spot with its outer edge indented, a slight brown striga above it from costa and traces of a medial shade excurved to lower angle of cell, then incurved; a slight postmedial brown striga from costa and traces of a series of dark points on the veins, excurved to vein 4, then oblique; a rather diffused double dark brown subterminal line filled in with ochreous and with darker points at the veins; a series of dark points in the interspaces before termen. Hind wing ochreous faintly tinged with rufous and irrorated with brown; a diffused brown subterminal shade, double and filled in with ochreous from vein 5 to inner margin; a series of small blackish spots before termen and a slight terminal line. Underside ochreous white; fore wing with indistinct discoidal spot and both wings with subterminal shade except towards tornus.

♀. Tegulæ rufous; thorax and fore wing more strongly tinged with rufous, the latter with the discoidal spot faintly defined by rufous and often without the medial shade and brown medial and postmedial marks on costa; both wings with the pale subterminal line not defined by dark brown and without the small spots before termen.

Ab. 1 ♂. Fore wing more strongly tinged with rufous,

Hab. N.E. RHODESIA, Kalungwisi Distr. (*Neave*), 2 ♂, 2 ♀; BECHUANALAND, Lake N'gami (*Lugard*), 1 ♀ type. *Exp.* 50-56 millim.

SECT. II. Antennæ of male with the branches long on outer side, short on inner side.

7491. *Ctenusa brevipecten*, n. sp.

♂. Head ochreous mixed with dark brown; antennæ dark brown; palpi rufous, the 3rd joint dark brown; thorax and abdomen pale ochreous slightly tinged with brown, the latter with faint rufous segmental lines; fore coxæ and femora rufous, the fore and mid tibiæ and the tarsi dark brown. Fore wing greyish ochreous irrorated with dark brown, the terminal area suffused with brown; a slight curved brown antemedial line with black points at the veins; a small elliptical black-brown discoidal spot with spot above it on costa and slight oblique shade from it to inner margin; a small postmedial black spot on costa and a series of points on the

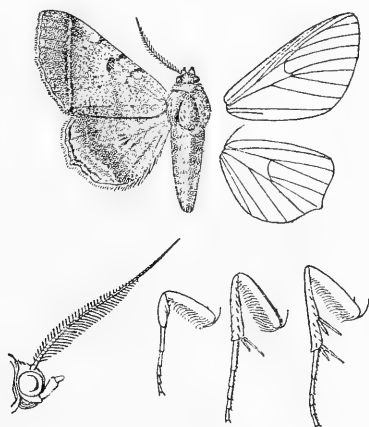


Fig. 80.—*Ctenusa brevipecten*, ♂. ½.

veins, excurved to vein 4, then incurved; a straight erect ochreous subterminal line, defined on inner side by dark brown and on outer by a series of points, ending at tornus; a series of slight dark points before termen; a fine pale line at base of cilia. Hind wing ochreous slightly tinged with rufous and irrorated with brown, the terminal area suffused with brown; a medial series of black points from discal fold to above vein 1; a faint ochreous subterminal line from vein 5 to tornus and a series of blackish points before termen; a slight brown terminal line and pale line at base of cilia. Under-side of both wings pale ochreous suffused with rufous and the terminal area with dark brown, small black discoidal spots.

Hab. S. NIGERIA, Lagos, Olokemeji (*Dudgeon*), 1 ♂ type; SENEGAL. *Exp.* 44 millim.

Genus **ACANTHONYX.**

Type.

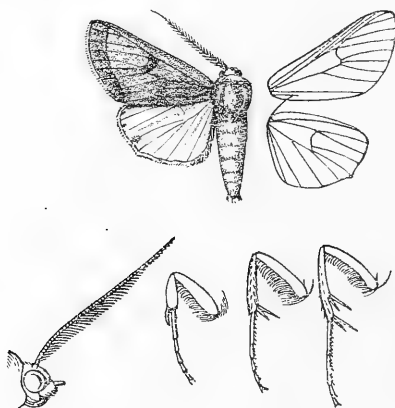
Acanthonyx, Hmspn. Ann. S. Afr. Mus. ii. p. 323 (1902) *marginalis*.

Proboscis fully developed; palpi upturned, the 2nd joint reaching to middle of frons and moderately clothed with hair, the 3rd porrect, moderate; frons smooth; eyes large, round; antennæ of male bipectinate with long branches, the apex serrate; thorax clothed with hair only and without crests; fore tibiæ not spined, with long curved claw at extremity on outer side; mid and hind tibiæ strongly spined; abdomen without crests. Fore wing rather narrow, the apex rounded, the termen evenly curved, crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the termen slightly excurved at vein 4; the cell half the length of wing; veins 3, 4 from angle of cell; 5 fully developed from just above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

- A. Fore wing with the terminal area white or grey irrorated with brown *marginalis*.
 B. Fore wing with the terminal area concolorous *pretoriæ*.

7492. *Acanthonyx marginalis*.*Agrotis marginalis*, Wlk. xv. 1700 (1858).*Agrotis varians*, Wllgrn. Wien. Ent. Mon. vii. p. 147 (1863).*Agrotis marginifera*, Wlk. xxxii. 706 (1865).

♂. Head, thorax, and abdomen whitish tinged with rufous. Fore wing greyish suffused with rufous, deepening to before the

Fig. 81.—*Acanthonyx marginalis*, ♂. †.

subterminal line, the terminal area grey thickly irrorated with brown; antemedial line with brown striga from costa, excurved to median nervure, then oblique; a dark spot on middle of costa; a larger grey-brown discoidal lunule with its lower extremity

produced, defined by dark brown except above; a brown post-medial spot on costa and faint traces of a waved line excurved to vein 4, then oblique; subterminal line whitish defined on outer side by dark striæ, slightly curved and very slightly waved; a fine pale line at base of cilia. Hind wing white tinged with red-brown and with dark spot at extremity of vein 4; the underside white.

Ab. 1. *varians*. Thorax and fore wing grey-white.

Ab. 2. Thorax and fore wing pale yellow, the latter with the terminal area whiter; hind wing not tinged with brown, the terminal area irrorated with brown; abdomen not tinged with brown but with faint rufous segmental lines.

Ab. 3. Similar, but fore wing with the discoidal mark angled inwards on median nervure to well before middle and much produced at lower extremity.

Ab. 4. Similar, but fore wing with the discoidal mark almost obsolete.

Hab. DAMARALAND, Swakop R., type † *varians* in Mus. Stockholm; BR. BECHUANALAND, Lake N'gami (*Lugard*), 3 ♂; CAPE COLONY (*Sir A. Smith*), 1 ♂ type. *Exp.* 38-48 millim.

7493. *Acanthonyx pretoriæ*. (Plate CCXI, fig. 4.)

Chalciope pretoriæ, Dist. Entom. xxxv. p. 212 (1902).

♂. Head and tegulæ rufous; thorax and abdomen ochreous slightly tinged with rufous and irrorated with a few brown scales. Fore wing ochreous suffused with rufous and sparsely irrorated with dark brown; the subbasal line represented by an oblique striga below costa and point on median nervure; the antemedial line obliquely curved from costa to median nervure, then incurved and obsolescent; a very large dark brown reniform stigma with reddish brown mark on costa above it; a postmedial spot on costa and curved series of points on the veins; subterminal line curved and very slightly waved; the inner line fine and with slight points on its inner side, the outer diffused and somewhat produced at the veins; a fine terminal line; cilia pale with dark brown lines through them. Hind wing pale ochreous, the terminal area tinged with red-brown; a postmedial series of short dark streaks on the veins.

♀. Fore wing with the dark marks on costa and postmedial series of points obsolete, the subterminal line not defined by brown.

Ab. 1. Thorax ochreous white, the tegulæ tipped with red-brown; abdomen white with ochreous segmental lines; fore wing ochreous without rufous suffusion; hind wing white, a terminal brown spot at vein 4.—Zululand.

Hab. TRANSVAAL, Lydenburgh, 1 ♀, Pretoria, 1 ♂ type; ZULULAND (*Wilson*), 1 ♂. *Exp.* 58 millim.

Genus **HOMÆA.**

Type.

Homæa, Guen. Noct. iii. p. 206 (1852) *clathrum*.

Proboscis fully developed; palpi upturned, the 2nd joint hardly reaching to vertex of head and moderately scaled, the 3rd long and somewhat acuminate at tip; frons smooth, with tuft of hair above; eyes large, round; antennæ of male ciliated; thorax clothed with hair and scales mixed and without crests; tibiæ of male and the hind tarsi above typically fringed with long hair, the fore and hind tibiæ not spined; abdomen smoothly scaled and without crests. Fore wing with the apex rounded; the termen evenly curved, crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the termen crenulate; the cell about one-third length of wing; veins 3, 4 from angle; 5 fully developed from above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

SECT. I. Tibiæ of male, the basal joints of fore tarsi, and the hind tarsi above fringed with long hair.

7494. **Homæa clathrum.**

Homæa clathrum, Guen. Noct. iii. p. 207 (1852); Hmps. Moths Ind. ii. p. 551.

Head and thorax blackish brown mixed with white; palpi white, the 3rd joint blackish except at extremity; frons with black bar, and a black bar between antennæ; tegulæ with black bands near base and at tips; pectus and legs white tinged with brown; abdomen ochreous brown with white band at base and slight whitish segmental lines, the ventral surface white tinged with



Fig. 82.—*Homæa clathrum*, ♂. †.

brown. Fore wing ochreous brown largely suffused with black, the veins streaked with white to the postmedial line; subbasal white striæ from costa and cell defined on each side by black; antemedial line white defined on each side by black, inwardly

oblique; an inwardly oblique white medial band from subcosta nervure to inner margin, forking in cell and enclosing a black spot reniform defined by white, produced at extremities and attenuated above; two whitish lines from lower angle of cell to inner margin, the outer dentate; a slight dentate whitish line before the post-medial white band, which is bent outwards and slight below the costa, then oblique and strong, a slightly dentate white line beyond it; subterminal line slight, white defined on inner side by diffused dentate black marks, excurved below vein 7 and at middle; a sinuous black line before termen defined on each side by white; cilia white at base. Hind wing ochreous brown, the inner half suffused with black from near base to the subterminal line; three indistinct waved whitish lines on inner antemedial area, and a blackish discoidal spot; an oblique white medial band followed by a slightly sinuous white line from vein 6 to inner margin; a slightly waved whitish subterminal line; a sinuous black line before termen defined on inner side by white; the termen with a series of whitish spots and a blackish spot at middle; cilia white with a blackish line through them. Underside white tinged with ochreous brown; both wings with blackish subterminal shade, the area beyond it suffused with brown; fore wing with the reniform slightly defined by blackish; hind wing with small black discoidal spot and curved waved medial and postmedial lines.

Hab. ABYSSINIA, Atbara (*Gerrard*), 2 ♀; ADEN; PUNJAB, Hussan Abdal (*Ferbury*), 1 ♀, Wuzeerabad (*Hearsey*), 1 ♂, Almorah (*Boys*), 1 ♂, 2 ♀; NEPAL, 1 ♂, 1 ♀; BOMBAY, Kutch, 4 ♂, 4 ♀, Deccan (*Day*), 1 ♂. *Exp.* 34-48 millim.

SECT. II. Tibiæ of male and hind tarsi not fringed with long hair.

7495. *Homæa hansali*.

Remigia hansali, Feld. Reis. Nov. pl. 117. f. 5 (1874).

Head and thorax pale fulvous slightly irrorated with fuscous; pectus and legs whitish mixed with brown; abdomen pale ochreous brown irrorated with fuscous, the ventral surface whitish mixed with fuscous. Fore wing pale fulvous faintly irrorated with brown; antemedial line pale brown, double, waved; a small brown annulus at upper angle of cell; medial line brown, very slightly dentate, curved from costa to lower edge of the annulus, then oblique; a slight oblique dentate brown line before the postmedial brown line, which is excurved below costa, then oblique, defined on outer side by a white band except at costa, followed by a series of fuscous spots; a faint dentate brownish subterminal line; a series of blackish points before termen; cilia grey-brown, whitish at tips. Hind wing with the basal half whitish, slightly tinged with fulvous on inner area, the terminal half pale fulvous; a fuscous antemedial line except towards costa; an oblique white medial band defined on each side by fuscous and traversed by a slight fuscous line on inner half, the

band followed by a maculate fuscous line; a faint dentate brownish subterminal line; a series of blackish points before termen; cilia

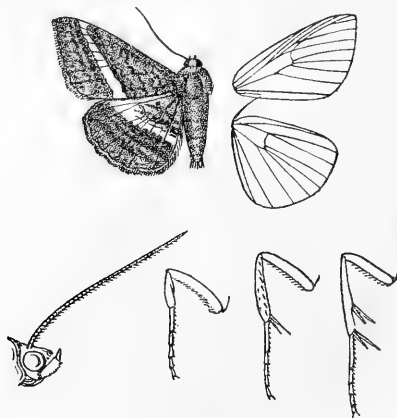


Fig. 83.—*Homœa hansali*, ♂. 1.

grey-brown, white at tips; the underside grey tinged and irrorated with brown, a diffused brown medial line, slight postmedial line, and subterminal shade.

Hab. W. AFRICA, Bogos; BR. E. AFRICA, Neugia (*Crawshaw*), 1 ♀; TRANSVAAL, Barberton (*Cooke*), 1 ♂; NATAL, Durban (*Gooch, Leigh*), 1 ♂, 3 ♀; CAPE COLONY, Pondoland (*Swinney*), 1 ♀, Transkei (*Miss F. Barrett*), 1 ♂. *Exp.* 36 millim.

Genus **OPOROPHYLLA**, nov.

Type, *O. ustulata*.

Proboscis fully developed; palpi obliquely upturned, the 2nd joint reaching to vertex of head and very broadly scaled, the 3rd minute, porrect; frons smooth, with large tuft of hair; eyes large, round; antennæ of male simple and somewhat laminate; thorax clothed with hair and hair-like scales, and without crests; fore tibiæ slightly fringed with hair; all the tibiæ strongly spined; abdomen dorsally clothed with rough hair, especially towards base, but without crests. Fore wing with the costa highly arched towards apex which is produced to a long blunt point, the termen very obliquely curved continuously with the highly arched inner margin, the basal half of inner area clothed with rough hair; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form a rather long areole; 11 from cell. Hind wing with the cell about one-third length of wing; vein 3 from before angle of cell; 5 fully developed from just above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

7496. *Oporophylla ustulata*.

Phyllodes ustulata, Westw. Cab. Or. Ent. p. 57, pl. 28. f. 1 (1848); Hmps. Moths Ind. ii. p. 557.

Phyllodes despicillator, Guen. Noct. iii. p. 122 (1852).

Head and thorax dark brown with a slight greyish gloss; palpi, except in front, sides of frons, gulæ, and antennæ rufous; fore

tibiæ in front and base of mid tibiæ rufous; abdomen dark brown. Fore wing pale rufous striated with deep rufous, the costa suffused with fuscous with pale streaks on the veins of terminal half, the inner area dark brown irrorated with ochreous, the area beyond the cell and from origin of vein 2 to termen between vein 4 and submedian fold golden bronze-brown, the apical part of terminal area paler golden bronze; some striæ of raised black scales below middle of cell; reniform narrow, rufous, incompletely defined by black and with greyish striga in centre, its upper extremity produced to two slight points; the interspaces beyond the cell between

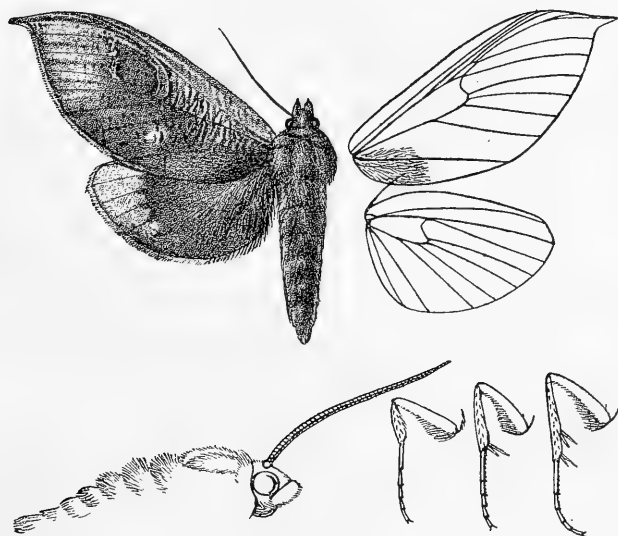


Fig. 84.—*Oporophylla ustulata*, ♂. ♀.

veins 8 and 5 with series of black striæ and points; an oblique rufous postmedial band striated with black between veins 7 and 5 and a spot below vein 2; a rufous and blackish terminal line and a black line near base of cilia. Hind wing fuscous brown, the terminal area yellow from costa to vein 2, its inner edge waved. Underside of both wings fuscous brown, the terminal area yellow striated with brown.

Hab. SIKHIM (*Lidderdale*), 4 ♂, 2 ♀; ASSAM, Silhet. *Exp.* 128–144 millim.

Genus **XYLOPHYLLA**, nov.

Type, *X. punctifascia*.

Proboscis fully developed; palpi obliquely upturned, the 2nd joint reaching to above vertex of head and broadly scaled, the 3rd very long, thickly scaled and somewhat dilated at extremity; frons smooth with large tuft of hair; eyes large, round; antennæ of male simple and somewhat laminate; thorax

clothed with rough hair only and without crests; tibiæ smoothly scaled and all strongly spined; abdomen dorsally clothed with long rough hair except at extremity, but without crests. Fore wing with the costa highly arched, the apex produced to a long acute point, the termen obliquely curved, the inner margin highly arched; veins 3 and 5 from near angle of cell; 6 from well below upper angle; 7 from angle; 8, 9, 10 stalked; 11 from cell. Hind wing with the cell about one-third length of wing; vein 3 from before angle; 5 fully developed from just above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

7497. *Xylophylla punctifascia*.

Phyllodes punctifascia, Leech, Trans. Ent. Soc. 1900, p. 576.

Head, thorax, and abdomen greyish brown; fore and mid femora at extremities and tibiæ at base and fore tarsi at base with spots of silvery white waxy scales. Fore wing greyish brown with slight dark irroration and striation, the area beyond end of cell more thickly striated; a blackish point in middle of cell; a small

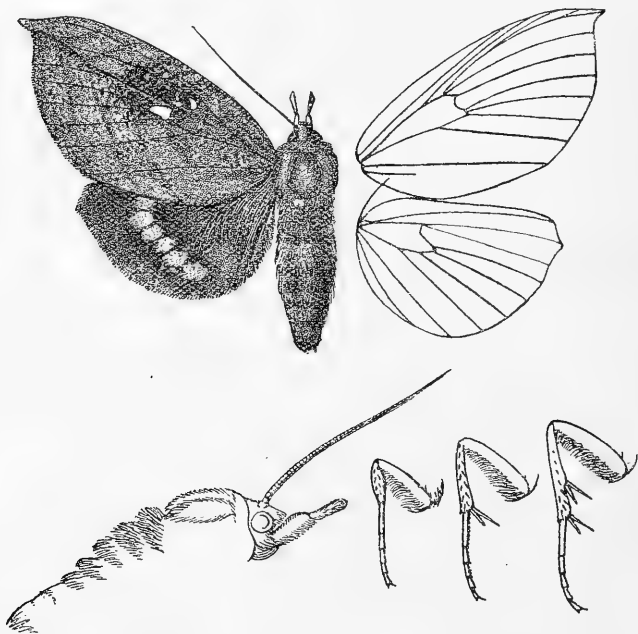


Fig. 85.—*Xylophylla punctifascia*, ♂. ♀.

spot at upper angle of cell separate from or conjoined to an oblique spot at middle of discocellulars, and a larger triangular spot at lower angle of cell, all formed of silvery white waxy scales; a faint oblique dark line from costa to discal fold just beyond the cell, then inwardly oblique to inner margin and with another similar

line beyond it; a slight fulvous streak defined by brown from middle of discocellulars to near the postmedial line, where it is met by an oblique brown streak from apex; postmedial line red-brown, oblique from costa to discal fold, then inwardly oblique; subterminal line red-brown, acutely angled outwards below apex, then oblique; cilia red-brown. Hind wing grey-brown suffused with black from middle to near termen; a postmedial series of six rather diamond-shaped orange-yellow spots from below vein 7 to submedian fold. Underside of both wings greyer with slight black irroration, a rather diffused curved postmedial dark shade; fore wing with the streak dark; hind wing with traces of a curved medial line.

Hab. W. CHINA, Omeishan, 1 ♂, 1 ♀ type, Chia-kou-ho (*Pratt*), 1 ♀. *Exp.* 118 millim.

Genus PHYILLODES.

Type.

Phyllodes, Boisd. Voy. Astrolabe, Lép. p. 246 (1832) *conspicillator*.

Proboscis fully developed; palpi obliquely upturned, the 2nd joint reaching to vertex of head and very broadly scaled, the 3rd moderate and dilated at extremity; frons smooth with large tuft of hair; eyes large, round; antennæ of male simple and somewhat laminate; thorax clothed with hair only and without crests; tibiæ smoothly scaled and all the tibiæ strongly spined; abdomen with some rough hair at base but without crests. Fore wing with the costa highly arched, the apex produced to a rather long point, the termen obliquely curved, the inner margin arched near base, some rough hair on base of inner area; veins 3 and 5 from near angle of cell; 6 from below upper angle; 9 from 10 anastomosing with 8 to form a long areole; 11 from cell. Hind wing with the cell about one-third length of wing, vein 3 from well before angle; 5 fully developed from just above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

SECT. I. Palpi with the 2nd joint very broadly angled, with scales in front at extremity.

- A. Hind wing with entire yellow band *eyndhovi*.
- B. Hind wing with oblique yellow patch in submedian interspace *staudingeri*.

7498. *Phyllodes eyndhovi*.

Phyllodes eyndhovii, Voll. Tijds. v. Ent. ii. p. 86, pl. 6 (1853); Hmps. Moths Ind. ii. p. 557.

Phyllodes semilinea, Wlk. Journ. Linn. Soc., Zool. vii. p. 176 (1864).

Phyllodes fasciata, Moore, P. Z. S. 1867, p. 69.

Head, tegulæ, and front of thorax rufous, the rest of thorax grey-brown; palpi grey-brown with the 3rd joint blackish; antennæ grey-brown with white point on 1st joint; pectus, legs, and abdomen grey-brown, the tibiæ with silvery-white spots of waxen scales at base. Fore wing grey-brown tinged with rufous and with a golden-brown gloss in parts; reniform white tinged with rufous and defined by brown, narrow, oblique, with sinuous

edges, extending to below angle of cell, an oblique brown streak from below it to apex slightly defined above by grey on basal half; traces of sinuous antemedial and medial shades, a rather more distinct postmedial shade, oblique from costa to the streak where it is angled outwards, and of an oblique subterminal shade from costa to the streak. Hind wing grey-brown; an orange-yellow medial band defined on each side by black suffusion, oblique from costa to

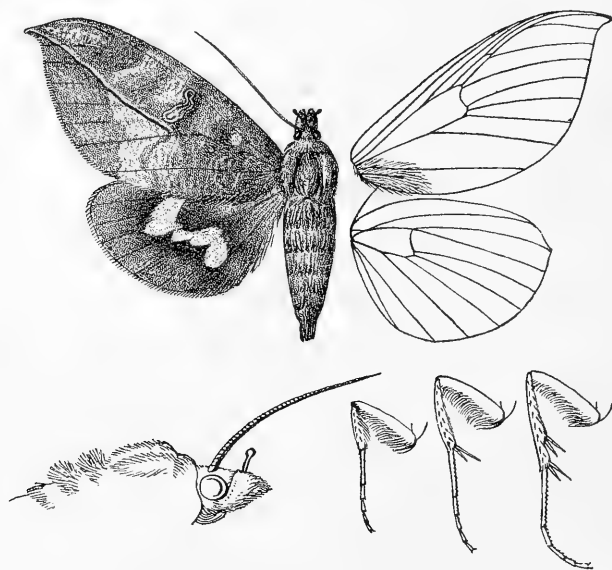


Fig. 86.—*Phyllodes cyndhovi*, ♂. $\frac{2}{3}$.

vein 5, then bent inwards and with waved edges, angled outwards at vein 1 and ending above inner margin. Underside of fore wing with whitish patch in and below end of cell defined by black suffusion except above; hind wing with slight curved medial line and postmedial line angled outwards at vein 6, then oblique, a black patch between the lines between veins 3 and 1 with two orange spots on it.

Hab. SIKHIM (*Lidderdale, Dudgeon*), 5 ♂, 2 ♀; ASSAM, Silhet; SUMATRA; BORNEO. *Exp.* 118–138 millim.

*7499. *Phyllodes staudingeri*.

Phyllodes staudingeri, Semp. Reis. Phil., Lep. ii. p. 576, pl 61. f. 5 (1901).

♂. Head and thorax red-brown; antennæ with the basal joint white in front; palpi, pectus, legs, and abdomen grey-brown. Fore wing golden brown with numerous faint pale striæ; traces of sinuous curved antemedial and medial shades; a black point in

middle of cell; reniform rufous defined by whitish and brown, oblique, formed by round spots above and below with a U-shaped mark between them and a point before it on median nervure; an oblique dark brown line from apex to below end of cell; traces of postmedial and subterminal shades, oblique from costa to vein 5, then incurved, the latter ending at tornus and with an oblique shade beyond it from costa to the oblique line. Hind wing dark brown; an oblique dark yellow postmedial band between veins 2 and 1; a faint greyish shade from costa beyond middle to vein 4; the termen tinged with greyish.

Hab. PHILIPPINES, N. Mindoro. *Exp.* 146 millim. This species is unknown to me.

SECT. II. Palpi with the 2nd joint less broadly angled with scales at extremity.

- A. Hind wing with crimson band from beyond lower angle of cell to tornus, the interspaces of terminal area with bluish-white streaks or white spots.
 - a. Fore wing with the reniform not produced at lower extremity and with white marks in upper and lower parts of centre *imperialis.*
 - b. Fore wing with the reniform produced at lower extremity to two points.
 - a¹. Fore wing with the reniform grey-brown *meyricci.*
 - b¹. Fore wing with the reniform grey-green..... *papuana.*
- B. Hind wing with rose-red patch on tornal area.
 - a. Hind wing without any white on the red patch, a large apical white patch *conspicillator.*
 - b. Hind wing with more or less white on the red patch.
 - a¹. Hind wing with the white placed above the tornal red patch and extending from vein 5 to 1.
 - a². Hind wing with the white patch broad and rounded.
 - a³. Hind wing with the red beyond the white patch not extending above submedian fold *verhuelli.*
 - b³. Hind wing with the red beyond the white patch extending to vein 3 *floralis.*
 - b². Hind wing with the white patch narrow and quadrate..... *enganensis.*
 - b¹. Hind wing with the white placed on and surrounded by the red patch.
 - a². Fore wing with the reniform strongly angled inwards on median nervure.
 - a³. Hind wing with the white centre of the rose-red patch large and quadrate *cerasifera.*
 - b³. Hind wing with the white centre of the rose-red patch smaller and bilobate *consobrina.*
 - b². Fore wing with the reniform slightly angled inwards on median nervure.
 - a³. Hind wing with prominent white centre to the rose-red patch *maligera.*
 - b³. Hind wing with the white centre to the rose-red patch almost obsolete *roseigera.*

7500. *Phyllodes imperialis*. (Plate CCXI. fig. 5.)*Phyllodes imperialis*, Druce, A. M. N. H. (6) ii, p. 241 (1888).

♂. Head and thorax red-brown, the head, tegulæ, and part of thorax with a plum-coloured gloss; pectus with a plum-coloured gloss; the legs greyish brown, the femora at extremities and tibiæ at base with small orange spots; abdomen grey-brown. Fore wing red-brown and ochreous brown; a small tuft of white scales at base followed by an ochreous tuft; the basal area with some long orange-yellow hair-like scales; a red-brown shade from basal part of costa; two red-brown antemedial lines from costa to vein 1; a red-brown point in middle of cell; reniform narrow, oblique, sinuous, with four whitish marks in centre, which is defined by red-brown, and a slight whitish annulus defined by red-brown; medial line rather diffused, red-brown, excurved to median nervure, then oblique; postmedial line indistinct, double, red-brown, oblique to vein 5, then inwardly oblique to vein 2 and sinuous to inner margin, an oblique whitish shade beyond it from costa to vein 6; an oblique dark brown streak from apex to vein 2, then sinuous to inner margin; a dark brown subterminal line, oblique to vein 6, then bent inwards and waved and excurved to tornus. Hind wing black-brown with a purplish gloss, the hair at base greyish; a crimson postmedial band from vein 5 to inner margin, its inner edge slightly sinuous, its outer excurved below vein 3 and at vein 1; diffused bluish-white streaks in interspaces of terminal area. Under-side of fore wing grey-brown striated with whitish, the discal area black-brown, an oblique series of three white spots in and below end of cell and in submedian interspace; hind wing grey-brown striated with white, the inner area black-brown to beyond the crimson band which does not extend above vein 3, two dark medial lines from costa to the dark area.

Hab. NEW HEBRIDES, 1 ♂; SOLOMONS. *Exp.* 174 millim.*7501. *Phyllodes meyricki*.*Phyllodes meyricki*, Oliff, Pr. Linn. Soc. N. S. W. (2) iv. p. 114 (1889).

♀. Head purple-brown; antennæ red-brown; thorax and abdomen reddish brown, the latter faintly tinged with purple. Fore wing rich reddish brown glossed with purple, the terminal area redder; faint postmedial and apical whitish marks on costa; an indistinct oblique brown line from apex to below end of cell; reniform grey-brown with its centre defined by red-brown, oblique, sinuous, angled inwards on median nervure and with its lower extremity produced to two points. Hind wing blue-black, brownish at base; a crimson postmedial band from vein 5 to inner margin, its edges incurved at middle and its upper extremity rather attenuate; a

terminal series of seven or eight triangular white spots in the interspaces. Underside of fore wing with obliquely placed white spots in and below end of cell and a small spot in submedian fold.

Hab. QUEENSLAND, Cairns, Mt. Bellenden-Ker, Daintree R. *Exp.* 176 millim. This species is unknown to me.

7502. *Phyllodes papuana*, n. sp. (Plate CCXI. fig. 2.)

♀. Head and thorax grey-brown with a plum-coloured gloss; femora at extremities and tibiæ at base with orange-yellow spots; abdomen grey-brown. Fore wing olive-brown with a slight purplish gloss and sparsely irrorated with white hair-like scales; traces of two antemedial lines and of a medial line excurved to median nervure, then oblique; a dark point in middle of cell; reniform pale grey-green with its centre defined by rust-red, narrow, oblique, sinuous, angled inwards on median nervure and with its lower extremity produced and bifid; faint traces of a double postmedial line oblique to vein 5, then incurved and sinuous, a slight whitish mark beyond it on costa; an oblique dark streak from apex to vein 3 just beyond the reniform, defined on lower side by ochreous on terminal area; subterminal line faint, dark, and excurved from costa to the oblique line, then ochreous and waved. Hind wing black-brown suffused with purple, the hair at base greyish; a crimson postmedial band from vein 5 to inner margin, its inner edge slightly sinuous, its outer waved and excurved; a series of diffused bluish-white streaks in the interspaces of terminal area. Underside of fore wing with the discal area suffused with black, white spots in and below end of cell; hind wing with the inner area suffused with black from before middle to beyond the crimson band, two radial lines from costa to the dark area.

Hab. BR. N. GUINEA, Aroa R., 1 ♀ type. *Exp.* 156 millim.

7503. *Phyllodes conspicator*.

Phalæna conspicator, Cram. Pap. Exot. ii. p. 1, pl. 97. ff. A, B (1779); Houttuyn, Nat. Hist. 1. xi. p. 644, pl. 92. f. 8; Boisd. Voy. de l'Asirolabe, Lép. p. 246, pl. 5. f. 4; Pag. J.B. Nass. xxxix. p. 138. *Phyllodes inspicillator*, Guen. Noct. iii. p. 121 (1852).

♂. Head and thorax ochreous brown, the head, tegulæ, and prothorax with a plum-coloured gloss; femora at extremities and base of tibiæ with slight whitish marks; abdomen blue-black, the extremity and ventral surface brownish white. Fore wing whitish suffused with ochreous brown and irrorated with a few white scales; traces of diffused antemedial and medial lines, oblique below median nervure; a brown point in middle of cell; reniform with whitish centre defined by rufous and whitish annulus defined by red-brown, a narrow lunule slightly angled inwards on median

nervure; traces of a double diffused postmedial line, oblique from costa to vein 5, then incurved and sinuous, an oblique white shade beyond it from costa to vein 6; an oblique whitish streak defined above by brown from apex to vein 3 just beyond the reniform, then erect and sinuous to inner margin; an indistinct dark subterminal line, oblique to vein 6, below the streak waved and with a dark patch on its inner side on inner area. Hind wing black-brown suffused with brilliant blue; a large white patch at apex and



Fig. 87.—*Phyllodes conspicillator*, ♂. ¾.

larger pink patch from below vein 4 to tornus. Underside of both wings grey-brown striated with white; fore wing with some blackish suffusion on basal half of inner area, a white spot below end of cell and dentate dark postmedial band defined on outer side by whitish; hind wing with the inner area suffused with black to the pink patch, an indistinct curved whitish postmedial band.

Hab. AMBOINA; CELEBES, 1 ♂; ARU; NEW GUINEA. *Ecp.* 146 millim.

7504. *Phyllodes verhuelli*.

Phyllodes verhuelli, Voll. Tijd. v. Ent. i. p. 159, pl. 8 (1857).

♂. Head and thorax grey-brown, the head and tegulæ with a plum-coloured gloss; pectus and legs fuscous brown, the femora at extremities and tibiæ at base with small whitish spots; abdomen black shot with blue, the genital tufts whitish, the ventral surface fuscous brown. Fore wing ochreous brown irrorated with some ochreous-white scales; oblique brownish antemedial and medial bands; a red-brown point in middle of cell; reniform with its centre and circumference defined by red-brown, some white in upper and lower parts of centre and some bluish white at lower extremity, narrow and angled inwards on median nervure; a brownish postmedial band angled outwards at discal fold, then incurved, an oblique whitish shade beyond it from costa to discal fold; an oblique brown streak from apex to the postmedial band at vein 4, defined below by whitish towards apex; subterminal line brownish, oblique to the streak, then waved and defined on outer side by pale grey-brown. Hind wing black shot with purple; some purplish white at apex; a large white patch from vein 4 just beyond the cell to vein 1 with a rosy-red patch from it to tornal part of inner margin and termen. Underside of fore wing with dark streaks on median nervure and vein 1 and the veins of postmedial area, a wedge-shaped white patch in end of cell and elongate patches in the interspaces of postmedial area bisected by the dark postmedial line, which is slightly excurved below costa, then incurved; hind wing grey-brown striated with white, the basal inner area black, a curved blackish line from costa to lower angle of cell.

Hab. JAVA, 1 ♂. *Exp.* 168 millim.

7505. *Phyllodes floralis*. (Plate CCXII. fig. 2.)

Phyllodes floralis, Butl. A. M. N. H. (5) xi. p. 427 (1883).

♂. Head and thorax grey-brown, the head, tegulæ, and patagia with a plum-coloured gloss; antennæ with the basal joint white in front at extremity; pectus and legs fuscous tinged with bluish, the femora at extremities and tibiæ at base with slight white marks; abdomen black shot with metallic blue. Fore wing olive-brown sparsely irrorated with large ochreous scales; two diffused oblique greyish antemedial bands and one medial band; a dark brown point in middle of cell; reniform pale olive-brown with its centre and circumference defined by red-brown, some white in upper and lower parts of centre and at lower extremity, narrow, angled inwards on median nervure; an oblique brown streak defined below by ochreous brown from apex to beyond lower angle of cell; postmedial band indistinct, greyish, oblique to the streak, then incurved and excurved in submedian interspace, an oblique whitish

shade beyond it from costa to the streak; subterminal line indistinct and oblique to the streak, then bent inwards and irregularly waved, the area beyond it suffused with ochreous brown from the streak to tornus. Hind wing black-brown shot with metallic blue; some bluish white at apex; a rounded white postmedial patch between veins 5 and 1 with rose-red between it and tornal parts of inner margin and termen. Underside of fore wing with the median nervure, vein 1 and the veins beyond the cell streaked with blackish, a white patch in end of cell and elongate white marks in the interspaces of postmedial area bisected by the blackish postmedial line, which is slightly excurved below costa, then obliquely incurved, the white in submedian fold extending to before middle; hind wing brown tinged with purplish grey and striated with white, the basal half of inner area blackish, a curved blackish band from costa to lower angle of cell.

♀. Fore wing with the transverse markings almost obsolete and without ochreous brown suffusion on terminal area; hind wing with less red beyond the white patch.

Hab. BURMA, Tenasserim, Donaut Hills (*de Nicéville*), 2 ♂; BORNEO, Mt. Dulit (*Hose*), 3 ♂, 1 ♀ type. *Exp.* 148–164 millim.

7506. *Phyllodes enganensis*. (Plate CCXII. fig. 7.)

Phyllodes enganensis, Swinh. A. M. N. H. (7) xiv. p. 424 (1904).

♂. Head and thorax grey-brown, the head and tegulæ except at tips with a plum-coloured gloss; antennæ with the basal joint white in front; pectus and legs fuscous tinged with bluish, the femora at extremities and tibiæ at base with slight white spots; abdomen black shot with metallic blue, the anal tuft whitish, the ventral surface fuscous. Fore wing olive-brown sparsely irrorated with large ochreous white scales; two antemedial and one medial diffused oblique greyish bands; a dark brown point in middle of cell; reniform with greyish centre defined by dark brown, its annulus red-brown on inner side, white on outer, narrow, angled inwards on median nervure; an oblique brown streak defined below by ochreous brown from apex to beyond lower angle of cell; an oblique whitish postmedial shade from costa to the oblique streak and a sinuous ochreous brown band from the lower extremity of the streak to inner margin; subterminal line diffused, dark and oblique from costa to the oblique streak, then a waved ochreous brown band diffused to termen towards tornus. Hind wing black shot with metallic blue; some whitish irroration at apex; a quadrate white postmedial patch between veins 4 and 1 with rose-red between it and tornal parts of inner margin and termen; a wedge-shaped red patch above terminal part of vein 2. Underside of fore wing with blackish streaks on median nervure, vein 1 and the veins beyond lower angle of cell, a white patch in end of cell and elongate patches in the interspaces of postmedial area bisected by a dark postmedial line slightly excurved below costa, then

incurved; the white in submedian interspace extending to before middle; hind wing grey-brown striated with white, the basal half of inner area suffused with black, a curved black line from costa to lower angle of cell.

♀. Fore wing with the transverse markings almost obsolete; hind wing with the red not extending to vein 2.

Hab. SUMATRA, Engano I., 1 ♂, 1 ♀ type. *Exp.* ♂ 170, ♀ 162 millim.

7507. *Phyllodes cerasifera*.

Phyllodes cerasifera, Butl. A. M. N. H. (5) xi. p. 426 (1883); Semper, Reis. Phil., Schmett. ii. p. 576, pl. 61. f. 4.

♀. Head and thorax greyish brown, the head, tegulæ and patagia with a plum-coloured gloss; femora at extremities and tibiæ at base with small ochreous spots; abdomen black-brown, the ventral surface greyish. Fore wing grey-brown with a purplish tinge, irrorated and striated with ochreous white; a dark point in middle of cell; reniform with its centre and circumference defined by dark brown with some bluish white at upper extremity and lower extremity of both centre and circumference, narrow and strongly angled inwards on median nervure; an oblique dark fascia from apex to vein 4, defined below by white towards apex. Hind wing black-brown; a large rosy-red patch on tornal area extending to lower angle of cell and vein 4 with a large white patch on it near its upper and basal edges. Underside of fore wing with a wedge-shaped white patch in end of cell and elongate patches in the interspaces of postmedial area intersected by a dark postmedial line slightly excurved below costa and incurved below vein 3; hind wing with faint curved dark line from costa to lower angle of cell.

Hab. PHILIPPINES, Mindanão, 1 ♀ type, Challenger Coll., Luzon. *Exp.* 154 millim.

7508. *Phyllodes consobrina*.

Phyllodes consobrina, Westw. Cab. Or. Ent. p. 57, pl. 28. f. 2 (1848); Hmps. Moths Ind. ii. p. 558.

Phyllodes perspicillator, Guen. Noct. iii. p. 120 (1852).

♂. Head and thorax dark brown, the head, tegulæ and patagia with a plum-coloured gloss, antennæ with white ring at extremity of basal joint; femora at extremities and tibiæ at base with slight whitish marks; spurs ringed with ochreous; abdomen black-brown dorsally suffused with metallic blue, the anal tuft whitish. Fore wing olive-brown irrorated with a few large whitish scales; two diffused silvery greyish antemedial shades from costa to below the cell and a medial shade oblique below the cell and obsolescent on inner area; a chocolate-brown point of raised scales in middle of cell; reniform red-brown defined by dark brown and with some blue-grey at lower extremity, its centre defined by brown and with

some blue-grey in upper and lower parts, narrow, strongly angled inwards on median nervure; an oblique ochreous brown streak from apex to beyond lower angle of cell, whitish towards apex; an oblique postmedial greyish shade from costa to the streak, followed by an oblique whitish shade; a waved ochreous brown band from vein 2 below the end of streak to inner margin; subterminal line slight, oblique and dark from costa to the streak, then retracted, irregularly waved and with the area beyond it suffused with ochreous brown. Hind wing black shot with metallic blue; a large rounded rose-red patch with waved edges from below vein 4 beyond the cell to tornus, its centre white and bisected by red on vein 2. Underside of fore wing with blackish streaks on median nervure, vein 1 and the veins beyond the cell, a bluish white streak in cell and streaks in the interspaces of postmedial area and below the cell, bisected by the dark postmedial line, which is slightly excurved below costa, then obliquely incurved; hind wing olive-brown with a purplish gloss and irrorated with a few white scales, the basal inner area suffused with black, a curved line from costa to beyond angle of cell.

♀. Fore wing with the transverse markings less distinct and without ochreous brown suffusion on terminal area.

Hab. SIKHIM (Möller), 1 ♂, 1 ♀; ASSAM (Badgley), 1 ♀, Silhet (Stainsforth), 4 ♂, 2 ♀, Dibrugrah (Ward), 1 ♀. *Exp.* 130–146 millim.

7509. *Phyllodes maligera*.

Phyllodes maligera, Butl. Ent. Mo. Mag. xx. p. 138 (1883); Moore, Lep. Ceyl. iii. p. 137, pl. 163. ff. 2, 2a; Hmps. Moths Ind. ii. p. 558.

♂. Head and thorax greyish brown, the head, tegulæ and outer edge of patagia with a plum-coloured gloss; antennæ with the basal joint white in front; the femora at extremities and tibiæ at base with slight whitish marks, the spurs and tarsi slightly ringed with whitish; abdomen black-brown dorsally suffused with metallic blue, the anal tuft greyish. Fore wing olive-brown irrorated with a few large white scales; two indistinct diffused oblique silvery greyish antemedial bands and a medial band; a point of raised brown scales in middle of cell; reniform red-brown, its centre and circumference defined by dark brown, some blue-grey at lower extremities of centre and circumference, narrow, slightly angled inwards on median nervure; an oblique ochreous brown streak from apex to beyond lower angle of cell, whitish towards apex and with a sinuous ochreous brown band from its lower extremity to inner margin; oblique silvery greyish postmedial and subterminal shades from costa to the oblique streak and a waved subterminal line from the streak to tornus with ochreous brown suffusion and striation beyond it. Hind wing black shot with metallic blue; a rounded rose-red patch with waved edges from below vein 4 to tornus, with a white patch in its centre bisected by red on vein 2.

Underside of fore wing with the median nervure, vein 1 and the veins of postmedial area streaked with blackish, bluish white streaks in, below, and beyond the cell in the interspaces, bisected by the blackish postmedial line, which is slightly excurved below costa, then obliquely incurved; hind wing brown tinged with purplish and striated with white, the basal inner area suffused with black, a curved line from costa to beyond lower angle of cell.

♀. Fore wing with the transverse markings less distinct and without the ochreous brown on terminal area.

Hab. CEYLON (*Lindesay, Whyte*), 1 ♂, 1 ♀ type, Kandy (*Green*), 1 ♂. *Exp.* 130–140 millim.

Pupa. Brown, the abdomen pitted with black and with metallic golden bands.

7510. *Phyllodes roseigera*. (Plate CCXIII. fig. 3.)

Phyllodes roseigera, Butl. P. Z. S. 1883, p. 164; Hmps. Moths Ind. ii. p. 558.

♂. Head and thorax brown, the head and tegulæ with a plum-coloured gloss; antennæ with white ring on basal joint; the femora at extremities and tibiæ at base with slight whitish marks, the tarsi slightly ringed with whitish; abdomen black-brown dorsally slightly shot with blue, the anal tuft greyish. Fore wing olive-brown irrorated with a few large whitish scales; two oblique silvery-grey antemedial shades from costa to below the cell and a medial shade; a point of raised brown scales in middle of cell; reniform red-brown, its centre and circumference defined by dark brown and with some white at lower extremities of centre and circumference, narrow, slightly angled inwards on median nervure; an oblique ochreous brown streak from apex to below end of cell, whitish towards apex and with waved ochreous brown band from its lower extremity to inner margin; two oblique silvery grey postmedial shades from costa to the oblique streak; a subterminal shade, faint and oblique to the streak, then retracted, waved, and with ochreous brown suffusion and striation beyond it. Hind wing black-brown shot with metallic blue; a rose-red patch with waved edges from below vein 4 to tornus, with some whitish suffusion in centre. Underside of fore wing with the median nervure, vein 1 and the veins of postmedial area streaked with blackish, purplish white streaks in the cell and in the interspaces beyond and below it, bisected by the blackish postmedial line which is slightly excurved below costa, then obliquely incurved; hind wing brown tinged with purplish and slightly striated with white, a curved dark line from costa to beyond lower angle of cell, the basal half of inner area suffused with black.

♀. Fore wing with the transverse markings less distinct and without the ochreous brown suffusion on terminal area.

Hab. ANDAMANS, 6 ♂, 2 ♀ type. *Exp.* 146–150 millim.

Genus **LOBOPHYLLODES**, nov.Type, *L. miniata*.

Proboscis fully developed; palpi upturned, the 2nd joint reaching to vertex of head and very broadly scaled, the 3rd oblique, moderate, dilated by a tuft of scales in front at extremity; frons smooth with large tuft of hair; eyes large, round; antennæ bipectinate with a pair of slender branches on each side of the joints, the apex ciliated; thorax clothed with rough hair and without crests; tibiæ moderately fringed with hair; all the tibiæ strongly spined; abdomen dorsally clothed with rough hair except at extremity and without crests. Fore wing with the costa highly arched, the apex produced to a point, the termen obliquely curved, the inner margin with a large lobe before middle fringed with long hair, then excised to tornus; veins 3 and 5 from near angle of cell; 6 from below upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the cell about one-third length of wing; vein 3 from before angle; 5 fully developed from above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

7511. *Lobophyllodes miniata*.

Hubnerius miniatus, Grunb. Deutsch, Ent. Zeit. 1907, p. 436, pl. iv. f. 7.

♂. Head and thorax red-brown; the head with a bluish fuscous

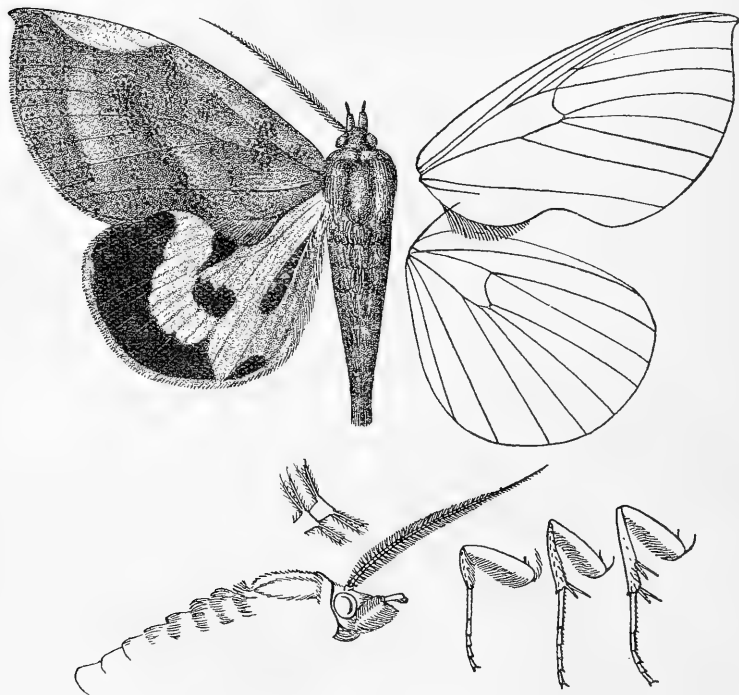


Fig. 88.—*Lobophyllodes miniata*, ♂. 1.

streak; tibiæ with a spot of silvery white waxen scales at base;

abdomen grey-brown, the hair on dorsum rufous. Fore wing red-brown tinged in parts with grey and irrorated and striated with black; traces of a blackish subbasal line from costa to vein 1; traces of a diffused antemedial line; a minute black point in middle of cell; traces of diffused oblique medial and postmedial bands obsolescent towards costa; a semi-elliptical violaceous white patch slightly irrorated with black on costa from beyond middle to near apex, with traces of two diffused dark subterminal lines from it to inner margin, filled in with greyish between veins 6 and 2. Hind wing scarlet, the hair on inner margin brown; a black fascia above medial part of vein 1; an oblique black patch beyond the cell between veins 7 and 5 followed by an excurved line to vein 4 and a rounded patch between veins 4 and 2; a black terminal band from costa to below vein 2 and a patch at vein 1, the inner edge of the band slightly sinuous and angled inwards at vein 2; the termen and cilia red-brown tinged with scarlet. Underside of fore wing with the disk scarlet, blackish fasciæ on costa and in submedian fold to beyond middle, a diffused obliquely curved black postmedial band from below costa to submedian fold; hind wing brownish white, the inner area scarlet, a series of black points in discal fold and of black scales in the interspaces of terminal half.

Hab. GOLD COAST, Ashanti (*McDowall*), 1 ♂; CAMEROONS, 1 ♂. *Exp.* 106 millim.

Genus **MINIOPHYLLODES.**

Type.

Miniophyllodes, de Joan. Bull. Soc. Ent. Fr. 1912, p. 331 *aurora*

Proboscis fully developed; palpi obliquely upturned, the 2nd joint reaching to vertex of head and rather broadly fringed with hair above and below, the 3rd long, fringed with hair above and below and spatulate at extremity; frons with large pointed tuft of hair; eyes large, round; antennæ of male with long bristles and cilia; thorax clothed with hair only and without crests; fore tibiæ moderately fringed with hair, the mid and hind tibiæ smoothly scaled, all the tibiæ spined; abdomen with the basal segments dorsally clothed with rough hair but without crests. Fore wing with the costa highly arched, the apex rounded, the termen evenly curved and not crenulate, the inner margin highly arched; veins 3 and 5 from near angle of cell; 6 from below upper angle; 9 and 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the cell about one-half length of wing; vein 3 from just before angle; 5 fully developed from just above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

*7512. *Miniophyllodes aurora*.

Miniophyllodes aurora, de Joan. Bull. Soc. Ent. Fr. 1912, p. 331.

♂. Head and thorax fiery red mixed with some yellow and with a brown dorsal streak; antennæ, palpi, pectus and legs grey-brown; abdomen fiery red, the ventral surface brownish white. Fore wing yellow suffused with fiery red and with numerous pale yellow striæ, the terminal half suffused with grey-brown, redder towards costa, the veins and costa greyish; a diffused blackish brown medial line, oblique from costa to lower angle of cell where it is angled

outwards, then inwardly oblique, a blackish streak from its angle to the upper edge of a rounded grey patch defined by blackish at

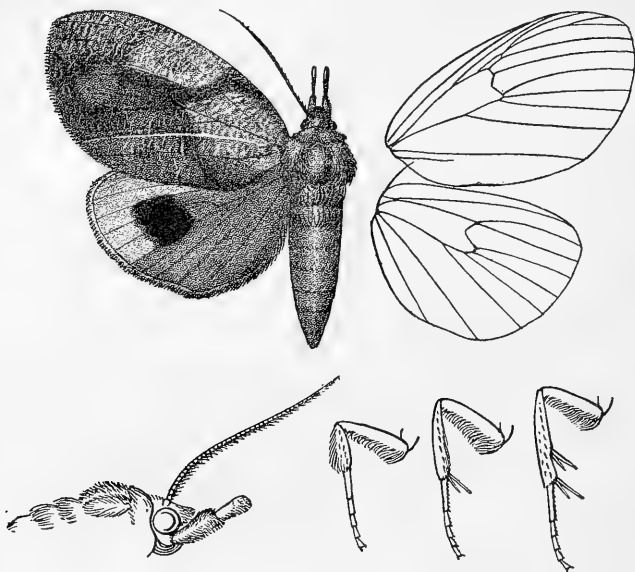


Fig. 89.—*Miniophyllodes aurorea*, ♂. 1.

middle of subterminal area; a brownish postmedial shade, oblique from costa to vein 5, then inwardly oblique; an oblique brownish subterminal shade from costa to the grey patch. Hind wing fiery red, the costal area towards apex and the terminal area to vein 3 yellow; a rounded black postmedial patch between veins 6 and 3, its outer edge waved. Underside fiery red, the costal area and terminal half to vein 2 grey-brown; hind wing yellowish tinged with brown, the inner area fiery red.

Hab. N. MADAGASCAR, type† ♂ in Coll. de Joannis. *Exp.* 80 millim.

Genus **MINIODES.**

Miniodes, Guen. Noct. iii. p. 119 (1852) Type. *discolor*.

Proboscis fully developed; palpi upturned, the 2nd joint reaching to about vertex of head and broadly scaled, the 3rd long; frons smooth with tuft of hair; eyes large, round; antennæ of male typically somewhat laminate and almost simple; thorax clothed with hair only and without crests; all the tibiæ strongly spined, the fore tibiæ fringed with hair on outer side; abdomen dorsally clothed with long woolly hair on basal segments but without crests. Fore wing with the costa highly arched towards apex which is somewhat produced and acute, the termen evenly curved; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the cell about one-third length of wing; veins 3, 4 from angle; 5 fully developed from just above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

SECT. I. Antennæ of male with long bristles and cilia.

7513. *Miniodes phæosoma*, n. sp.

Head and thorax dark grey-brown; palpi at base and the 2nd joint above scarlet, the inner side fulvous; frons with lateral scarlet spots; the basal joint of antennæ and streaks behind them scarlet; patagia with scarlet spots at base and streak near upper edge, the thorax with subdorsal scarlet streaks; coxæ brownish ochreous, the fore legs tinged with scarlet below; abdomen grey-brown with a faint crimson tinge, the ventral surface ochreous towards base. Fore wing yellow striated with brown and scarlet and almost wholly suffused with reddish brown except on costal area to beyond middle, beyond the cell, a postmedial spot in

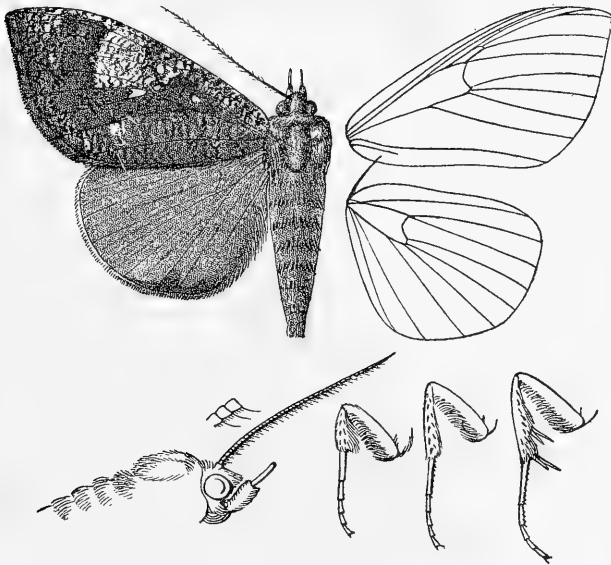


Fig. 90.—*Miniodes phæosoma*, ♂. 1.

submedian fold, and an apical patch; small oblique white spots defined by black below upper angle and above lower angle of cell and a small wedge-shaped spot beyond lower angle; a grey-brown band on postmedial area, its outer edge excurved below costa and at middle. Hind wing deep crimson, the inner area with some brown hair; the termen and cilia from below vein 4 brown, the brown on termen angled inwards at veins 2 and 1. Underside of fore wing crimson, the costa and apical area to vein 2 brown striated with yellowish; hind wing yellowish striated with brown and with crimson fasciæ above and below submedian fold.

Ab. 1. Fore wing with oblique blackish streak from middle of costa to termen at vein 2, the white spots at end of cell reduced to points.

Ab. 2. Similar, but fore wing yellow and crimson striated with brown to the postmedial band.

Hab. SIERRA LEONE, 1 ♂ type; GOLD COAST, Bibianaha (*Spurrell*), 1 ♀; S. NIGERIA, Sapele (*Sampson*), 1 ♀. *Exp.* 80–90 millim.

SECT. II. Antennæ of male somewhat laminate and almost simple.

- | | |
|---|--------------------|
| A. Abdomen grey-brown; hind wing with black-brown patch beyond lower angle of cell..... | <i>maculifera.</i> |
| B. Abdomen crimson; hind wing without black-brown patch | <i>discolor.</i> |

7514. *Miniodes maculifera*, n. sp. (Plate CCXII. fig. C.)

♂. Head, thorax, and abdomen dark greyish brown; the sides of head with a faint crimson tinge; basal joint of antennæ with a white ring; pectus and ventral surface of abdomen with a purplish tinge. Fore wing olive-brown striated with dark brown and with traces of some scarlet especially below costa; a minute tuft of scarlet scales at base; antemedial line represented by traces of a dark bar from costa and a small black spot below the cell; reniform represented by a small rather bidentate spot above, oblique striga at middle, and triangular spot excised on outer side beyond lower angle of cell, all pure white defined by black; postmedial line faint, diffused, blackish, oblique to vein 4, then inwardly oblique; an oblique diffused black shade from apex with an elliptical grey patch defined by blackish below it between veins 5 and 3; cilia dark brown. Hind wing purplish crimson, the inner area clothed with brown hair, narrowly towards tornus; a rounded black-brown patch beyond lower angle of cell between veins 6 and 2; the veins slightly streaked with brown towards termen; cilia with a few brown scales and whitish tips, the termen narrowly and cilia dark brown from above vein 2 to tornus. Underside of fore wing crimson with the marginal areas ochreous brown striated with dark brown; hind wing ochreous brown striated with dark brown, the terminal half of inner area with crimson streaks in the folds above and below vein 1.

♀. Sides of head scarlet; thorax with some scarlet; fore wing scarlet thickly striated with brown; hind wing with less brown hair on inner area, the veins without brown towards termen; the underside more ochreous.

Hab. N. NIGERIA, Panguma (*Anderson*), 1 ♀; UGANDA, Toro Daro Forest (*Neave*), 1 ♂, 1 ♀ type. *Exp.* 90 millim.

7515. *Miniodes discolor*.

Miniodes discolor, Guen. Noct. iii. p. 119 (1852).

Head and thorax orange-yellow tinged with scarlet; palpi with the 3rd joint grey-brown; frons with grey-brown band; vertex of head with some grey-brown; tegulæ with grey-brown band, the

prothorax with a bar, the patagia with an oblique stripe at base; pectus and legs grey, the pectus in front yellow tinged with crimson, the femora and fore tibiae in front tinged with crimson; abdomen crimson, the extremity greyish, the ventral surface whitish tinged with yellow and crimson. Fore wing orange-yellow, usually more or less suffused with crimson, and more or less thickly mottled with red-brown; a more or less distinct oblique dark streak from middle of costa to termen at vein 2 with traces of an oblique line from it at median nervure to inner margin; small white spots defined by black on upper and lower discocellulars and a spot beyond lower angle of cell which is either round, elliptical, or rather triangular; traces of a curved line beyond the cell, a postmedial line, and of a subterminal

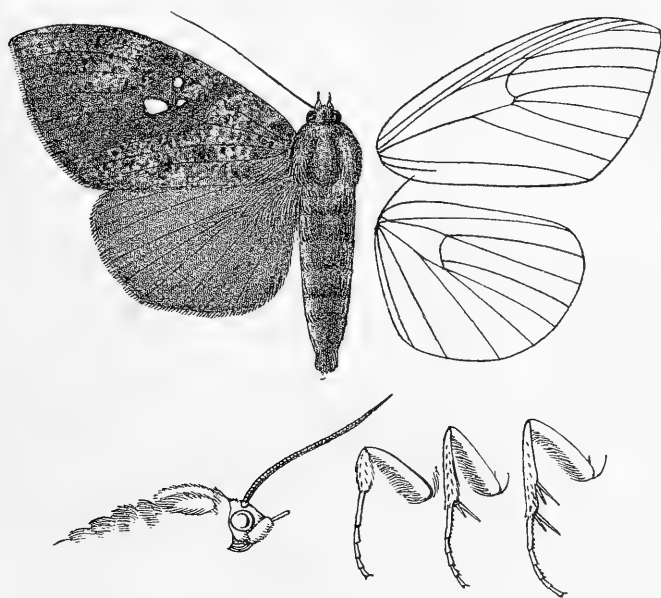


Fig. 91.—*Miniodes discolor*, ♂. $\frac{1}{2}$.

line excurved below vein 7 and at middle; cilia dark brown. Hind wing crimson, the cilia fulvous yellow, grey-brown towards tornus. Underside of fore wing crimson, the terminal area broadly yellow, the costa and termen mottled with purplish fuscous; hind wing yellowish striated with purplish fuscous, the inner area crimson with some fuscous in submedian fold.

Hab. SIERRA LEONE, 1 ♂, 2 ♀; GOLD COAST (*Johnston*), 1 ♂, Ashanti, Obuassi (*Graham*), 1 ♀; S. NIGERIA, Lagos (*Strachan*), 1 ♀, Ebute Meta (*Boag*), 1 ♀, Old Calabar (*Cockburn*, *Crompton*), 1 ♂, 2 ♀, Sapele (*Sampson*), 3 ♀, Ilesha (*Humfrey*), 1 ♀; UGANDA, Ketoma (*Doggett*), 1 ♀; PORTUGUESE S. AFRICA (*Woollicroft*), 1 ♀; NATAL, Durban. *Eap.* 82-96 millim.

Genus **DERMALEIPA.**

Dermaleipa, Saalm. Lep. Madag. p. 460 (1891), non Type.
 descr. *parallelipeda*.

Proboscis fully developed; palpi upturned, the 2nd joint reaching to about middle of frons and moderately scaled, the 3rd moderate; frons smooth with small tuft of hair; eyes large, round; antennæ of male minutely ciliated; vertex of head tufted with hair; thorax clothed with hair only and without crests; fore and mid tibiæ smoothly scaled, the hind tibiæ fringed on both sides with long hair, the mid and hind tibiæ spined; abdomen dorsally flattened and clothed with woolly hair but without crests, sometimes with lateral fringes of hair. Fore wing of male sometimes with the costa arched before middle and somewhat excised at middle, the apex produced and acute, the termen evenly curved and slightly crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the cell about one-third length of wing; veins 3, 4 from angle; 5 fully developed from above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only; male typically with a fringe of very long hair on upperside from above middle of inner margin, a fringe of long hair on inner margin except towards base, and sometimes a fringe of short hair on underside on vein 1.

SECT. I. Fore wing of male with the costa arched before middle and excised at middle, the apex produced; hind wing with tuft of long hair on upper-side above middle of inner margin.

7516. *Dermaleipa juno*.

Noctua juno, Dalm. Anal. Entom. p. 52 (1823); Hmps. Moths Ind. ii. p. 505; Staud. Cat. Lep. pal. p. 246.

Ophideres elegans, Van der Hoev. Tijds. Nat. Gesch. vii. p. 280, pl. 5. ff. 6 a, b (1840).

Lagoptera multicolor, Guen. Noct. iii. p. 226 (1852).

Head and thorax red-brown, purplish brown, or grey-brown; palpi towards base, gulæ, and pectus scarlet; tibiæ and tarsi fuscous irrorated with grey, the hind tibiæ fringed with scarlet hair; abdomen grey-brown, the sides, anal tuft, and ventral surface scarlet, lateral white points on terminal segments. Fore wing ochreous brown, purple-brown, or grey-brown with slight dark irroration, the costal edge rufous, the inner margin with chocolate-brown streak except towards base; a reddish-brown subbasal line slightly excurved below costa and ending at submedian fold; antemedial line red-brown, often slightly defined on outer side by ochreous and usually slightly excurved below costa, oblique; a black point in middle of cell; reniform defined by brown and with a black point in lower part, often with a small black spot in upper part and its lower part filled in with black; postmedial line red-brown, usually slightly defined on inner side by ochreous, slightly excurved below costa, then oblique; subterminal line dark brown or olive-brown defined on outer side by ochreous, incurved from apex to inner margin near tornus; a waved shade from the subterminal line at vein 6 to termen at submedian fold. Hind wing black, the hair at base grey and

on inner margin brown, the terminal area scarlet; a blue-white medial band arising at vein 6, excurved beyond lower angle of cell and oblique to above inner margin; some brown irroration on medial part of termen. Underside of fore wing ochreous tinged with scarlet and with fuscous irroration on terminal area, a slight black discoidal lunule, and postmedial patch between vein 5 and submedian fold; hind wing ochreous, the costal area and terminal area to vein 2 scarlet irrorated with fuscous.

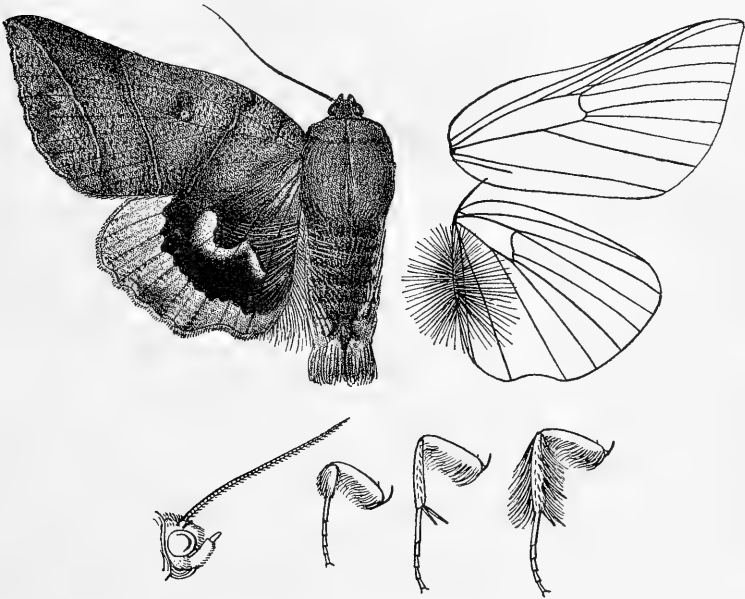


Fig. 92.—*Dermaleipa juno*, ♂. 1.

Hab. E. SIBERIA, Amurland, 1 ♂, 1 ♀, Ussuri; JAPAN, Hakodate (Andrews), 1 ♂, Oiwaké (Pryer), 1 ♂, Nikko (Maries), 1 ♂, Tokio (Maries), 2 ♂, Yokohama (Jones), 2 ♂; COREA, Gensan (Leech), 1 ♂; C. CHINA, Hang-chow (Elwin), 1 ♂, Kiukiang (Pryer, Pratt), 3 ♂, 1 ♀; W. CHINA, Kwei-chow, 1 ♂, Nitou, 1 ♂, Chang-yang (Pratt), 1 ♀, Omei-shan, 1 ♂, Ta-chien-lu (Pratt), 1 ♀; KASHMIR, Jalauri Pass (McArthur), 1 ♀; PUNJAB, Kulu, Sultanpur (G. Young), 1 ♂, Masuri, 1 ♀, Dharmasála (Hocking), 4 ♂, 2 ♀, Umballa, 1 ♀, Abbotabad (Yerbury), 1 ♀; SIKHIM, 1 ♂, 1 ♀; ASSAM (Badgley), 2 ♂, Shillong (Parish), 2 ♂, 2 ♀; ? MADRAS, Nilgiris. *Exp.* 74-104 millim.

SECT. II. Fore wing of male with the costa evenly curved, the apex not produced.

- A. Abdomen of male with immense lateral anal tufts of long hair-like scales; hind wing with fringe of long hair from inner margin and short hair on vein 1 on underside but without tuft of long hair on upperside above middle of inner margin.

7517. *Dermaleipa microrhæa*.

Noctua microrhæa, Fabr. Ent. Syst. iii. (2) p. 17 (1794).

Head and thorax reddish brown tinged with grey; pectus ochreous brown; legs grey-brown, the fore and mid tibiæ tinged with fuscous; abdomen pale scarlet, the anal tufts fuscous brown, the ventral surface grey-brown. Fore wing glossy grey-brown

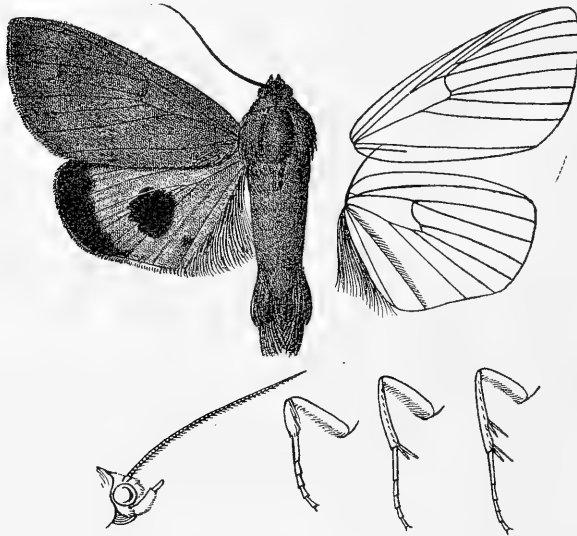


Fig. 93.—*Dermaleipa microrhæa*, ♂. 1.

irrorated with black. Hind wing orange tinged with scarlet on terminal half; a large round black patch beyond lower angle of cell with a patch of black irroration below it above vein 1; a blackish terminal band narrowing to a point at vein 2, its inner edge slightly waved, the termen with slight grey marks. Underside of fore wing purplish black, the inner area ochreous, the costa, apical area, and termen greyish; hind wing fuscous black, the inner area ochreous yellow.

Ab. 1. Hind wing with the black patch elliptical and extending to vein 7, the terminal band much broader.

Hab. AUSTRALIA, 1 ♀ type in Banksian Coll.; QUEENSLAND (*Waller*), 1 ♂; N. AUSTRALIA, Port Darwin (*Buckland*), 1 ♂. *Exp.* 74–80 millim.

B. Abdomen of male without lateral anal tufts of long hair-like scales; hind wing with tuft of long hair on upper-side above middle of inner margin, fringe of long hair on inner margin and of short hair on vein 1 on under-side.

- a.* Hind wing orange-red, the postmedial spot round..... *orbifera*.
b. Hind wing pale yellow, the postmedial spot bar-shaped *metaxantha*.

7518. *Dermaleipa orbifera*.

Lagoptera orbifera, Wlk. xv. 1825 (1858).

♂. Head and thorax pale reddish brown tinged with grey; legs grey-brown, the fore femora fringed with blackish hair;

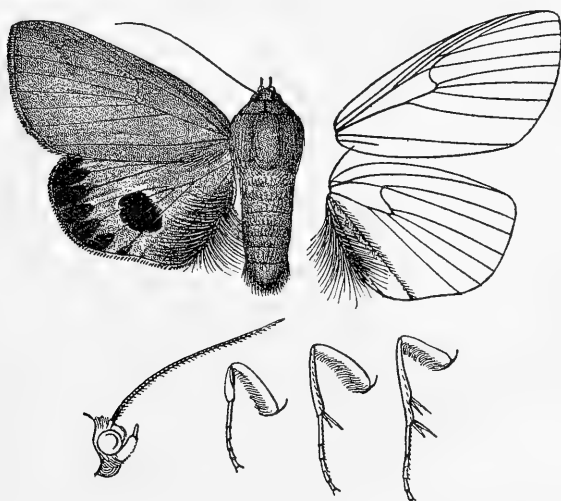


Fig. 94.—*Dermaleipa orbifera*, ♂. $\frac{1}{2}$.

abdomen pale crimson, the anal tuft brown, the ventral surface ochreous brown. Fore wing glossy grey-brown slightly irrorated with black. Hind wing orange, the terminal half slightly tinged with scarlet; a large round black patch beyond lower angle of cell with some black irroration below it above vein 1; a black terminal band from apex to vein 2, its inner edge dentate, the termen slightly greyish. Underside of fore wing purple-black, the inner area ochreous, the costa, apical area, and termen greyish; hind wing fuscous black, the inner area orange-yellow, the yellow extending into the cell, the terminal area greyish to vein 2.

♀. Anal tuft, pectus, legs, and ventral surface of abdomen brownish white; underside of fore wing brownish white, the

costal and terminal areas irrorated with black, a diffused black subterminal patch between vein 5 and submedian fold; hind wing brownish white, the inner area orange-yellow, the costal area and terminal area to vein 2 slightly irrorated with black.

Hab. QUEENSLAND, Townsville (*Dodd*), 1 ♂, Rockhampton, 1 ♀; N. AUSTRALIA (*Elsey*), 1 ♀ type. *Exp.* 76 millim.

7519. *Dermaleipa metaxantha*, n. sp. (Plate CCXII. fig. 1.)

♂. Head and thorax pale ochreous brown; pectus ochreous yellow; legs pale grey-brown; abdomen yellow slightly tinged with scarlet, the anal tuft and ventral surface pale grey-brown. Fore wing pale ochreous brown irrorated with fuscous. Hind wing pale yellow, the tuft of hair above inner margin with a fulvous tinge; a bar-shaped black postmedial spot between vein 5 and submedian fold; a terminal black band from apex to vein 2, its inner edge waved, the termen slightly ochreous. Underside of fore wing purplish black, the inner area ochreous, the costa, apical area, and termen grey-brown; hind wing fuscous black, the inner area ochreous yellow.

Hab. N. AUSTRALIA (*Walker*), 1 ♂ type. *Exp.* 80 millim.

C. Abdomen of male without lateral anal tufts of long scales; hind wing with tuft of long hair on upperside above middle of inner margin and fringe of long hair on inner margin, but without fringe of short hair on vein 1 on underside.

a. Hind wing scarlet.

a¹. Hind wing with the inner area brown *rubricata*.

b¹. Hind wing wholly scarlet *minians*.

b. Hind wing yellow.

a¹. Fore wing with the postmedial line obliquely curved *arcifera*.

b¹. Fore wing with the postmedial line oblique, straight *parallelipipeda*.

c. Hind wing brown *metaphæa*.

7520. *Dermaleipa rubricata*.

Lagoptera rubricata, Holl. Ent. News Philad. v. p. 57 (1894).

Ophiusa ignicans, Hmps. Ann. S. Afr. Mus. ii. p. 342 (1902).

Dermaleipa daseia, Fawcett, P. Z. S. 1902, ii. p. 307, pl. xxvi. f. 1.

Head and thorax rufous mixed with ochreous; palpi and sides of frons tinged with scarlet; pectus scarlet; legs brown mixed with scarlet, the tarsi greyish fuscous; abdomen grey-brown, the extremity and ventral surface scarlet. Fore wing rufous with numerous fine pale striæ, tinged with purple-grey especially on inner and terminal areas, and irrorated with black especially on inner area and the veins of terminal area; subbasal line pale, oblique, from costa to vein 1; antemedial line pale defined on outer side by rufous, very oblique; a black point in middle of cell; reniform defined by black, narrow, produced at upper

extremity; postmedial line pale defined on outer side by rufous, oblique and ending near tornus, slightly incurved between veins 5 and 2; subterminal line rufous defined on outer side by black points on the veins, sinuous and ending on termen above tornus. Hind wing orange-scarlet, the inner area fuscous brown extending into the cell and as a subterminal band to above vein 4; the tuft of hair on inner area ochreous. Underside orange-scarlet, fore wing with black discoidal lunule; hind wing with the apical area irrorated with black, the inner area greyish, the hair on inner margin brown towards base, ochreous towards tornus.

♀. Hind wing yellower, the termen only tinged with scarlet.

Hab. GOLD COAST, Accra (*Sir G. Carter*), 1 ♂, 1 ♀; GABOON (*Dobree*), 1 ♂, Ogové R.; BR. C. AFRICA, Mlangi Boma (*Neave*), 1 ♀; NATAL, Durban (*Millar*), 2 ♂ type *ignicans*. *Exp.* 58–64 millim.

***7521. *Dermaleipa minians*. (Plate CCXII. fig. 3.)**

Ophiodes minians, Mab. C. R. Soc. Ent. Belg. xxviii. p. cxc (1884).

♂. Head and thorax ochreous suffused with rufous; pectus, femora, and hind tibiæ pale scarlet, the fore and hind tibiæ and the tarsi rufous; abdomen pale rufous. Fore wing ochreous suffused with rufous and irrorated with red-brown; subbasal line slight, brown, oblique, from costa to submedian fold; antemedial line brown, oblique, sinuous; orbicular whitish with brown annulus, small, round; reniform whitish with brown annulus and curved brown line in centre, large; postmedial line brown, rather oblique below vein 4; subterminal line very indistinct, brown, waved, with dark points at the veins. Hind wing pale scarlet. Underside of both wings uniform pale scarlet.

Hab. MADAGASCAR, type ♂ in Coll. Mabile. *Exp.* 56 millim.

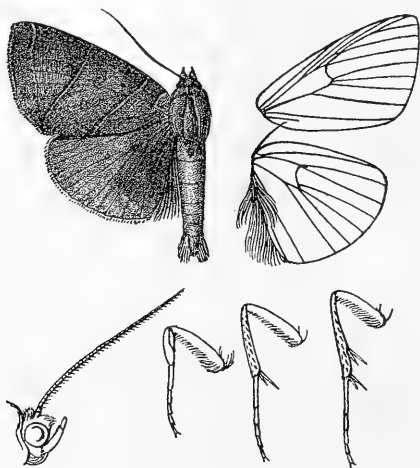
7522. *Dermaleipa arcifera*, n. sp. (Plate CCXII. fig. 4.)

♀. Head and thorax pale rufous mixed with ochreous; pectus and legs tinged with scarlet, the fore and mid tibiæ and the tarsi fuscous; abdomen yellow, the ventral surface tinged with scarlet. Fore wing olive-brown, the inner and terminal areas tinged with purplish grey and irrorated with brown; a pale subbasal striga from costa; antemedial line pale defined on each side by brown, very oblique; reniform defined by brown; postmedial line pale defined on outer side by brown, excurved below costa, then rather oblique; a pale slightly waved subterminal line defined on outer side by black points on the veins. Hind wing and underside uniform yellow.

Hab. BR. E. AFRICA, Takaunga (*Thomas*), 1 ♀ type. *Exp.* 58 millim.

7523. *Dermaleipa parallelipeda*.*Ophiodes parallelipeda*, Guen. Noct. iii. p. 230 (1852).*Ophisma saalmülleri*, Mab. Ann. Soc. Ent. Fr. 1879, p. 328; Saalm. Lep. Madag. p. 460, ff. 141, 142.

Head and thorax red-brown; tarsi fuscous; abdomen greyish ochreous, the ventral surface tinged with scarlet. Fore wing red-brown, irrorated with blackish and tinged with purplish grey except on postmedial costal area; a pale oblique subbasal line from costa to vein 1; antemedial line pale defined on each side by brown,

Fig. 95.—*Dermaleipa parallelipeda*, ♂. 1.

very oblique; a small black spot in middle of cell; reniform brownish defined by dark brown, narrow; postmedial line pale defined on outer side by brown, very oblique and ending at tornus, a slight fuscous mark beyond it in discal fold; subterminal line pale defined on inner side by brown and on outer by black points on the veins of inner half, sinuous. Hind wing yellow, the inner margin brownish. Underside yellow; fore wing with blackish discoidal lunule.

Ab. 1. Fore wing with the reniform filled in with black.

Ab. 2. Fore wing with yellow spot in lower part of reniform; hind wing with the termen tinged with scarlet.

Ab. 3. ♀. Hind wing with the basal half suffused with brown angled outwards in submedian fold, and with diffused subterminal band.

Ab. 4. Head, thorax, and fore wing ochreous tinged with red-brown.—N.E. Rhodesia.

Hab. SENEGAL; GOLD COAST (*Dudgeon*), 1 ♂, Bibianaha (*Spurrell*), 2 ♂, Ashanti (*Graham*), 1 ♂; S. NIGERIA, Old Calabar (*Crompton*), 1 ♀, Sapele (*Sampson*), 3 ♂, 1 ♀, Ilesha (*Humfrey*), 1 ♀; N.E. RHODESIA, Lake Bangweolo (*Neave*), 1 ♂. *Exp.* 46–62 millim. Guenee's plate 21, fig. 5 represents *Mocis renigioides*.

7524. *Dermaleipa metaphæa*, n. sp. (Plate CCXII. fig. 5.)

♀. Head and thorax red-brown mixed with some grey; abdomen grey-brown, the anal tuft yellowish. Fore wing purplish grey irrorated with fuscous, the costal area suffused with reddish brown; subbasal line whitish, oblique, from costa to submedian fold; ante-medial line whitish defined on outer side by brown, very oblique; a blackish point in middle of cell; reniform brown slightly defined by whitish, narrow; postmedial line whitish defined on outer side by brown, very oblique and ending at tornus towards which it is slightly excurved, a slight fuscous mark beyond it in discal fold; subterminal line whitish defined on outer side by black points on the veins, slightly sinuous; a fine whitish line at base of cilia. Hind wing fuscous brown, the costal area, termen, and cilia tinged with ochreous; a more or less prominent narrow oblique ochreous postmedial band from below costa to submedian fold. Underside brownish ochreous, the fore wing with fuscous discoidal lunule and indistinct diffused fuscous subterminal band obsolete towards costa and inner margin.

Ab. 1. Fore wing with the reniform filled in with black.

Hab. GOLD COAST, Tarkwa (*Justice*), 1 ♀, Kumasi (*Whiteside*), 2 ♀; S. NIGERIA, Sapele (*Sampson*), 1 ♀, Olokemeji (*Dudgeon*), 1 ♀ type. *Exp.* 56–62 millim.

Genus **LAGOPTERA.**

	Type.
<i>Thyas</i> , Hübn. Samml. Exot. Schmett. ii. Index, p. 4 (1806), non descr.	<i>honestæ</i> .
<i>Lagoptera</i> , Guen. Noct. iii. p. 223 (1852)	<i>honestæ</i> .
<i>Artena</i> , Wlk. xiv. 1388 (1858)	<i>submira</i> .

Proboscis fully developed; palpi upturned, the second joint reaching to about vertex of head and rather broadly scaled, the 3rd short or moderate; frons smooth; eyes large, round; antennæ of male ciliated; thorax clothed almost entirely with hair and without crests; fore and hind tibiæ of male fringed with long hair, the fore tibiæ not spined, the mid tibiæ spined, the hind tibiæ spined between the medial and terminal spurs only; abdomen with dorsal ridges of hair on basal segments. Fore wing with the costa highly arched towards apex which is somewhat produced and acute, the termen evenly curved and hardly crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the cell about one-third length of wing; vein 3 from near angle; 5 fully developed from above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only; the underside in male clothed with silky androconia.

SECT. I. (*Lagoptera*.) Hind wing of male with a fringe of hair on vein 1 on underside; tegulæ without tufts of scales at tips.

- | | |
|--|------------------|
| A. Fore wing with the medial line excurved beyond the cell, then oblique | <i>honestæ</i> . |
| B. Fore wing with the medial line incurved throughout. | |
| a. Hind wing with large black subterminal patch from costa to vein 5 | <i>regia</i> . |
| b. Hind wing with subterminal black patch at discal fold and diffused streaks on the veins | <i>miniacæ</i> . |

7525. *Lagoptera honesta*.

Thyas honesta, Hübn. Samml. Exot. Schmett. ii. Index, p. 4; pl. 203. ff. 1, 2 (1806); Moore, Lep. Ceyl. iii. p. 158, pl. 167. f. 2; Hmps. Motus Ind. ii. p. 504; Semper, Reisen Phil., Schmett. ii. p. 559.

Head and thorax bright rufous; palpi scarlet in front and behind, the 3rd joint blackish; pectus and legs scarlet, the fore tibiæ and the tarsi blackish; abdomen scarlet. Fore wing bright

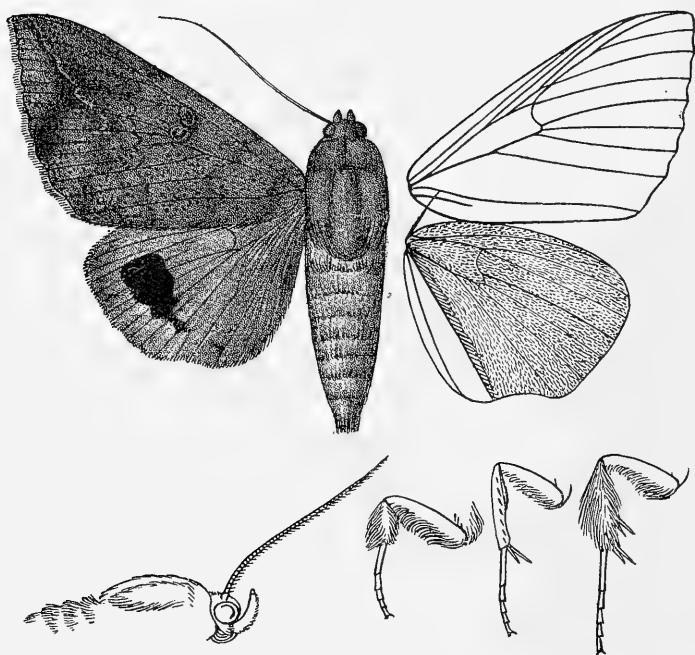


Fig. 96.—*Lagoptera honesta*, ♂. 1.

rufous mixed with fulvous and slightly irrorated with black; ante-medial line indistinct, rufous, oblique, sinuous, sometimes defined on outer side by white points on the veins; a slight white or pale

point in middle of cell; reniform whitish, constricted at middle, its lower part with black marks in it or filled in with black; post-medial line indistinct, rufous, oblique to discal fold, then somewhat inwardly oblique, sometimes defined on outer side by white points on the veins, a somewhat darker band beyond it, its outer edge angled outwards at vein 6; subterminal line dark, oblique and slightly defined on inner side by whitish from apex to vein 6, then fulvous and incurved. Hind wing scarlet; a rather triangular black postmedial patch between veins 6 and 3; the termen and cilia rufous except towards tornus, with some whitish on termen at veins 3 and 2. Underside of both wings orange-scarlet.

Ab. 1. Hind wing with the black patch larger and more elliptical, continued as a band to vein 1 towards which it is diffused to termen.

Hab. N. INDIA, 1 ♂, 1 ♀; SIKHIM (*Rothney*), 1 ♀; ASSAM, Silhet, 1 ♀; BENGAL, Maunghboon, 1 ♀, Balasore, 1 ♀; BOMBAY, Bandra (*Jayaker*), 1 ♀; CEYLON (*Templeton*), 1 ♀; BURMA, Rangoon, (*Noble*), 1 ♂, Kalewa (*Watson*), 1 ♀; ANDAMANS, 1 ♀; SINGAPORE (*Ridley*), 1 ♂; PHILIPPINES, Manila (*J. J. Walker*), 1 ♂; CHRISTMAS I. (*Andrews*), 3 ♀. *Exp.* 88–100 millim.

Larva. Semper, Reisen Phil., Schmett. ii. p. 559, pl. S. ff. 12, 13.

Pale brown with segmental blackish lines; warts with a few hairs; stigmata black; head with black streaks. Food-plant: "Baucal."

7526. *Lagoptera regia*. (Plate CCXIII. fig. 6.)

Thyas regia, Lucas, P. Linn. Soc. N. S. W. (2) viii. p. 151 (1894).

Head and thorax red-brown; palpi pale crimson in front except 3rd joint; coxæ pale crimson, the fore and mid legs dark brown irrorated with white; abdomen scarlet with some red-brown hair at base, the ventral surface pale crimson. Fore wing red-brown with slight whitish irroration on basal area below costa; antemedial line brown defined on outer side by white scales, obliquely curved and slightly sinuous; reniform with bluish white annulus faintly defined by brown, strongly constricted at middle; postmedial line dark brown defined on inner side by whitish scales, straight and erect, a red-brown shade beyond it angled outwards at vein 6; a faint whitish subterminal line defined on inner side by red-brown, diffused widely towards costa, waved from costa to discal fold, then incurved and ending at tornus; cilia deep red-brown. Hind wing scarlet; a broad black subterminal patch from costa to vein 5, its inner edge irregularly dentate and its outer edge somewhat indented at the veins, the area below it with brown suffusion irrorated with black and white forming wedge-shaped patches on the veins; cilia orange-scarlet, mixed with brownish on apical half, then brown with some white at tips. Underside of both wings deep orange; fore wing with faint brown suffusion on

terminal half of costa and terminal area; hind wing with the terminal area irrorated with black from apex to vein 2.

Ab. 1. Fore wing with black spots in upper and lower parts of reniform.

Hab. DUTCH N. GUINEA, Kapaur (*Doherty*), 1 ♂; N. QUEENSLAND, type ♀ in Coll. Lucas; N. AUSTRALIA, Port Albany, 1 ♂. *Exp.* 106 millim.

7527. *Lagoptera miniacea*.

Lagoptera miniacea, Feld. Reis. Nov. pl. 116. f. 8 (1874).

♂. Head and thorax bright rufous; palpi scarlet, the 3rd joint blackish; frons with white line above; antennæ with the shaft white above; pectus and legs scarlet, the fore and mid tibiæ and the tarsi blackish; abdomen orange-scarlet. Fore wing rufous tinged with olive-ochreous and slightly irrorated with black; antemedial line indistinct, rufous with some white scales on it, oblique, sinuous; reniform defined by slight white marks, constricted at middle; postmedial line slightly incurved, with rufous suffusion beyond it; subterminal line indistinct, blackish with some white scales on it, sinuous and oblique from apex to vein 6, then incurved, a blackish mark before it at vein 6. Hind wing orange-scarlet with a maculate black postmedial band from vein 6 to 1 formed by a patch at discal fold and diffused streaks and scales on the veins; the termen rufous irrorated with whitish at veins 4 to 2. Underside of both wings yellow tinged with scarlet.

♀. Fore wing irrorated with greenish white, the ante- and postmedial lines with greenish white on them, the latter not incurved, the subterminal line without black mark on it.

Hab. SOLOMON IS. (*Brenchley*), 1 ♂; FIJI (*Mathew*), 1 ♀. *Exp.* 88-92 millim.

SECT. II. (*Artena*). Hind wing of male without fringe of hair on vein 1 on underside; tegulæ with tufts of large scales on inner side at tips.

- | | |
|---|-----------------------|
| A. Fore wing with the postmedial line excurved beyond the cell, then incurved | <i>submira</i> . |
| B. Fore wing with the postmedial line excurved below costa, then oblique and meeting the antemedial line above inner margin | <i>rubida</i> . |
| C. Fore wing with the postmedial line excurved below costa, then oblique and slightly sinuous to inner margin towards tornus | <i>dotata</i> . |
| D. Fore wing with the postmedial line oblique and straight from middle of costa to subterminal line at tornus | <i>inversa</i> . |
| E. Fore wing with the postmedial line slightly excurved below costa, then oblique and straight to inner margin towards tornus | <i>lacteicincta</i> . |
| F. Fore wing with the postmedial line oblique and almost straight from costa beyond middle to inner margin toward tornus | <i>occidens</i> . |
| G. Fore wing with the postmedial line erect and straight throughout | <i>certior</i> . |

7528. *Lagoptera submira*. (Plate CCXIII. fig. 1.)

Artena submira, Wlk. xiv. 1389 (1858); Hmps. Moths Ind. ii. p. 497.

Head and thorax deep chocolate-brown; antennæ with the shaft whitish in front towards base; pectus ochreous tinged with rufous; legs grey-brown; abdomen grey-brown, the ventral surface ochreous tinged with rufous. Fore wing deep chocolate-brown irrorated with some purple-grey, especially on medial area except towards inner margin, the terminal area rather redder; a curved dark subbasal line from costa to median nervure; antemedial line dark, very oblique; a dark point in middle of cell; reniform defined by dark brown, narrow, and constricted at middle; postmedial line dark brown, excurved to vein 4, then incurved; subterminal line purple-grey slightly defined on each side by dark brown, almost straight, ending at tornus; a series of dark points before termen. Hind wing dark brown, the termen faintly tinged with grey; cilia yellow. Underside greyish brown; hind wing with the cilia yellow.

Hab. SIKHIM (*Dudgeon*), 4 ♂; BOMBAY, 1 ♂, Kanara (*Ward*), 1 ♂; TRAVANCORE, Trivandrum (*Fergusson*), 1 ♀; BURMA, Moulmein (*Clerk*), 1 ♂ type. *Exp.* 64–72 millim.

7529. *Lagoptera rubida*. (Plate CCXIII. fig. 2.)

Ophisma rubida, Wlk. Journ. Linn. Soc., Zool. vii. p. 179 (1864); Swinh. Cat. Het. Mus. Oxon. ii. p. 144.

Head and thorax deep chocolate-brown; frons with lateral whitish striæ above; antennæ with the shaft white in front towards base; tegulæ with ochreous scales on inner side in male; pectus fulvous yellow; fore tibiæ blackish irrorated with white, the mid tibiæ and the tarsi grey-brown; abdomen fuscous, the ventral surface grey-brown. Fore wing deep velvety chocolate-brown with a greyish tinge on medial costal area, the terminal area blue-white; a faint dark subbasal striga from costa; antemedial line very indistinct except towards costa, obliquely curved; a dark point in middle of cell; a minute white spot defined by brown at upper angle of cell; postmedial line very indistinct, dark, excurved below costa, then oblique and meeting the antemedial line above inner margin; subterminal line defining the blue-white area, straight; a crenulate brown line just before termen with a series of white points and some rufous suffusion beyond it. Hind wing fuscous brown; an oblique blue-white band from middle of costa to above tornus; the termen and cilia whitish from just below apex to submedian fold. Underside grey-brown with an ochreous tinge towards base.

Hab. ASSAM, Khâsis, 1 ♀, Dibrugrah (*Ward*), 1 ♂; BORNEO, Sarawak (*Wallace*), Santabong (*Shelford*), 1 ♀. *Exp.* 76–78 millim.

7530. *Lagoptera dotata*.

Noctua dotata, Fabr. Ent. Syst. iii. 2. p. 55 (1794); Hmps. Moths Ind. ii. p. 496.

Head and thorax red-brown; frons with white line above; antennæ with the shaft white in front towards base; pectus and legs whitish tinged with brown, the tibiæ and tarsi grey-brown; abdomen grey-brown, the ventral surface whitish, tinged with brown towards extremity. Fore wing pale red-brown with slight dark irroration, the postmedial area deeper red-brown, the terminal area white irrorated with brown; a slight sinuous brown subbasal line from costa to submedian fold; antemedial line red-brown defined on outer side by whitish, slightly excurved below costa, then very oblique; a minute dark point in middle of cell; two

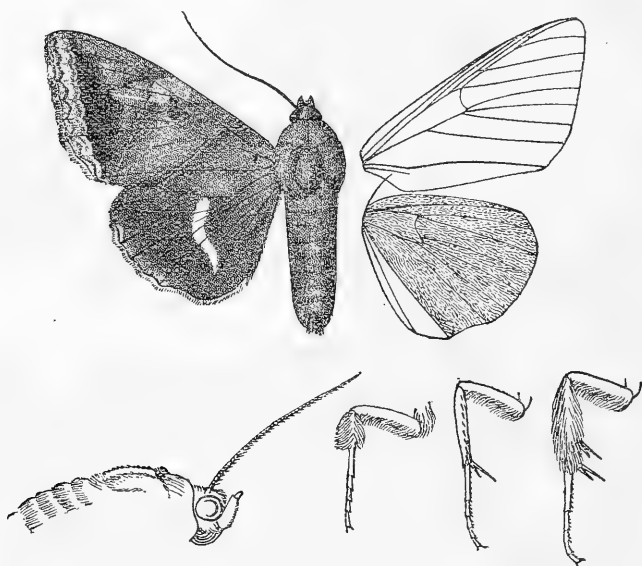


Fig. 97. -*Lagoptera dotata*, ♂. 1.

small brown discoidal annuli; postmedial line brown defined on inner side by whitish, oblique, slightly excurved and sinuous from below costa to vein 2; subterminal line indistinctly double, straight, the inner line defining the whitish terminal area; a crenulate brown line just before termen; a fine dark terminal line; cilia whitish with dark brown lines at middle and tips. Hind wing dark fuscous brown; a narrow obliquely curved blue-white band just beyond middle from vein 6 to submedian fold; the termen whitish irrorated with brown from just below apex to submedian fold, with an indistinct crenulate brown line just before termen;

cilia white faintly chequered with brown. Underside brownish white, the terminal areas broadly suffused with brown.

Hab. FORMOSA, Takow (*Hobson*), 1 ♀; CENTR. CHINA, Kiukiang (*Pratt*), 1 ♂, 1 ♀; W. CHINA, Chang-yang (*Pratt*), 1 ♀, Kweichow, 1 ♀, Ta-chien-lu (*Pratt*), 1 ♀; PUNJAB, Dharmasāla (*Hocking*), 1 ♀, Kasauli, 1 ♀; SIKHIM (*Möller*), 1 ♂, 2 ♀; ASSAM, Khá'sis, 1 ♀, Dibrugrah (*Ward*), 1 ♀; BENGAL, Calcutta, 1 ♂, Ganjam, 1 ♂; CENTR. INDIA, Raipur (*Betham*), 1 ♀; BOMBAY, 1 ♂, Bandra (*Jayaker*), 1 ♂, Ratnagiri (*Jayaker*), 1 ♀; MADRAS, Malabar, 1 ♀, Nilgiris (*Hampson*), 1 ♀; BURMA, Moulmein (*Clerk*), 1 ♀, Bhamo, 1 ♀, Tenasserim, Beeling (*Watson*), 1 ♀; SINGAPORE (*Ridley*), 1 ♀. *Exp.* 70-84 millim.

7531. *Lagoptera inversa*.

Ophisma inversa, Wlk. xiv. 1384 (1858).

Lagoptera bivirgata, Snell. Tijds. v. Ent. xxviii. p. 11, pl. 1. ff. 5, 5a (1885).

♀. Head deep chocolate-brown; palpi scarlet at base; thorax red-brown; pectus scarlet; legs grey-brown, the femora fringed with scarlet hair; abdomen grey-brown. Fore wing red-brown slightly tinged with greyish except beyond the postmedial line and with faint pale striae, the terminal area purple-grey; an oblique dark brown subbasal striga from costa; antemedial line dark brown, very oblique; reniform represented by a minute black spot at lower angle of cell and traces of a dark line on its inner edge; postmedial line dark brown slightly defined on inner side by grey, very oblique and meeting the dark brown subterminal line at tornus; a fine brown line just before termen; cilia dark brown with a greyish line through them. Hind wing deep fuscous brown; a narrow oblique bluish white postmedial band from vein 6 to above tornus; the termen greyish; a fine dark line just before termen from vein 6 to submedian fold; cilia with white patches below apex and at submedian fold. Underside grey-brown.

Ab. 1. Fore wing pale ochreous brown to the postmedial line.

Hab. PENANG (*Flower*), 1 ♀; SINGAPORE (*Ridley*), 2 ♀; BORNEO, Sarawak (*Wallace*), 2 ♀ type, Sandakan (*Pryer*), 1 ♀; PHILIPPINES; DUTCH N. GUINEA, Fak-fak (*Pratt*), 1 ♀, Arfak Mts., Ninay Valley (*Pratt*), 1 ♂, Kapaur (*Doherty*), 1 ♀. *Exp.* 78-86 millim.

7532. *Lagoptera lacteicincta*. (Plate CCXIII. fig. 4.)

Ophiusa lacteicincta, Hmps. Journ. Bomb. Nat. Hist. Soc. ined.

♀. Head and thorax chocolate red-brown; frons with white line above; antennæ with the shaft white above towards base; pectus and legs ochreous, the tibiae and tarsi grey-brown; abdomen grey-brown, the ventral surface tinged with ochreous. Fore wing chocolate red-brown tinged with purplish grey to the postmedial line, the terminal area creamy white with a greenish tinge; the inner margin with a dark streak; subbasal line dark brown, oblique,

from costa to submedian fold; antemedial line dark brown, very oblique; a dark point in middle of cell; two small whitish discoidal spots defined by brown, the upper spot minute; postmedial line dark brown, very oblique, very slightly excurved below costa; the postmedial area with slight dark streaks on the veins, a faint reddish patch below costa and slight ochreous points on costa; subterminal line defining the pale terminal area, slightly incurved, a diffused slightly waved brownish line beyond it; an indistinct crenulate line just before termen and a fine terminal line. Hind wing greyish brown, the termen and cilia except towards tornus creamy white. Underside pale grey-brown tinged with ochreous towards base, cilia pale ochreous.

Hab. ASSAM, Shillong (*Rawlings*), 1 ♀ type. *Exp.* 78 millim.

7533. *Lagoptera occidens*, n. sp. (Plate CCXIII. fig. 5.)

♀. Head and thorax pale red-brown; palpi, pectus, legs, and abdomen grey-brown. Fore wing pale red-brown; a curved brown subbasal line from costa to submedian fold; antemedial line dark brown, oblique, expanding into a slight spot at costa; an oblique brown medial line from costa to lower angle of cell, then very faint and incurved; postmedial line brown defined on outer side by white, oblique and ending near tornus; an incurved brown line from apex to tornus, the area beyond it rather paler; a series of dark points just before termen; cilia with a fine brown line near base. Hind wing grey-brown; a faint narrow oblique paler band from middle of costa to above tornus; a fuscous black patch on terminal area from apex to vein 2 with a slight pale bar from it to tornus; the termen and cilia whitish from below apex to submedian fold with some minute black points just before termen. Underside grey suffused and irrorated with fuscous; fore wing with dark discoidal bar, faint postmedial line excurved to vein 4, then incurved, blackish subterminal shade, and the termen white except towards tornus; hind wing with dark discoidal striga, curved medial and postmedial lines, and a subterminal shade.

Hab. SIERRA LEONE (*Dudgeon*), 1 ♀; GOLD COAST, Kumasi (*Whiteside*), 1 ♀, Obuassi (*Bergman*), 1 ♀ type. *Exp.* 58 millim.

7534. *Lagoptera certior*. (Plate CCXIII. fig. 7.)

Ophisma certior, Wlk. xiv. 1381 (1858); Hmps. Moths Ind. ii. p. 496.

Ophisma contenta, Wlk. xiv. 1381 (1858).

Ophisma siamica, Wlk. xxxiii. 957 (1865).

♀. Head and thorax pale red-brown; antennæ with the shaft white in front towards base; pectus whitish tinged with red-brown; legs greyish brown; abdomen grey-brown, the anal tuft and ventral surface pale rufous. Fore wing pale red-brown slightly tinged with whitish to the postmedial line, then brighter red-brown; an indistinct curved red-brown subbasal line from costa to median

nervure; antemedial line red-brown, oblique, waved; a black point in middle of cell; reniform defined by brown, narrow, and constricted at middle; postmedial line dark brown, erect, straight, another faint line beyond it; an oblique dark shade from apex to discal fold and traces of a waved line from it to inner margin; a series of blackish points before termen. Hind wing fuscous brown with a greyish tinge; a narrow oblique bluish-white band from middle of costa to above tornus; termen grey-brown from below apex to vein 1; cilia grey-brown. Underside uniform greyish brown.

Ab. 1. *contenta*, paler.

Hab. BURMA, Moulmein (*Clerk*), 2 ♀ type and type *contenta*, Rangoon (*Noble*), 1 ♀; SIAM. *Exp.* 66-68 millim.

Genus EUMINUCIA, nov.

Type, *E. conflua*.

Proboscis fully developed; palpi upturned, the 2nd joint reaching to vertex of head and broadly scaled, the 3rd long; frons smooth, with slight tuft of hair above; eyes large, round; antennæ of male with bristles and cilia; thorax clothed with hair only and with dorsal ridge-like crest; tibiæ of male fringed with long hair, of female smoothly scaled, the fore tibiæ not spined, the hind tibiæ spined between the mid and terminal spurs only; abdomen with dorsal ridges of hair on basal segments. Fore wing rather long and narrow, the apex rounded, the termen evenly curved and crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the cell one-third length of wing; veins 3, 4 from angle; 5 fully developed from just above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only. Male with the basal half of both wings clothed with rough androconia on underside.

- | | |
|--|--------------------|
| A. Fore wing with the antemedial line joining the postmedial line just above vein 1, the subterminal line angled inwards to near the postmedial line at vein 5 | <i>conflua</i> . |
| B. Fore wing with the antemedial line joining the postmedial line at submedian fold, the subterminal line bent inwards to near the postmedial line at vein 5 | <i>orthogona</i> . |

7535. *Euminucia conflua*, n. sp.

Head and thorax deep chocolate-brown, the latter with the dorsal ridge-like crest tipped with ochreous white; frons with ochreous white bar above; palpi pale in front; pectus and legs pale ochreous tinged with rufous; abdomen grey-brown, the ventral surface pale ochreous brown. Fore wing greyish ochreous suffused with red-brown, the terminal area rather paler, the inner margin with creamy white fascia except at base; antemedial line creamy white, arising from base of median nervure, curving upwards to below costa before middle, then downwards to just above middle of vein 1 where it is met by the oblique slightly sinuous postmedial line, the area below the antemedial line and between the postmedial and subterminal lines deep chocolate-brown to the pale fascia on inner

margin; orbicular chocolate-brown defined by ochreous white, small and round; reniform chocolate-brown defined by ochreous white, emitting a short spur on inner side on subcostal nervure, angled inwards on median nervure to below the orbicular where it forms an oblique hook below the cell, on outer side slightly produced at upper and lower extremities; subterminal line ochreous white slightly defined on outer side by brown, waved, acutely

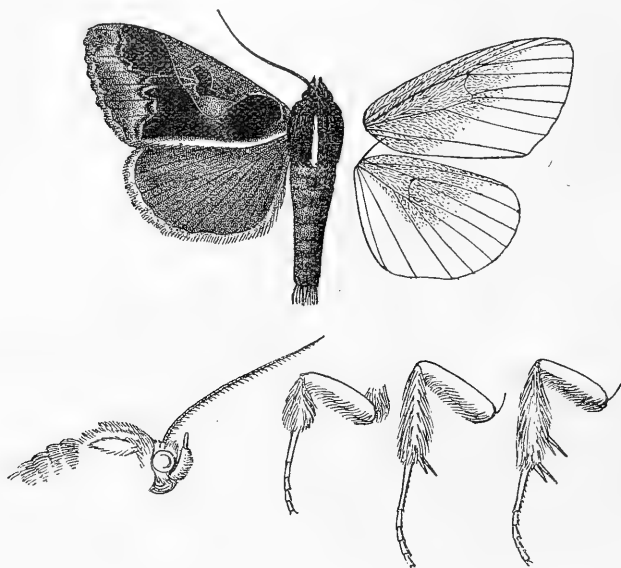


Fig. 98.—*Euminucia conflua*, ♂. 1.

angled inwards at vein 5 to the postmedial line; a fine crenulate dark terminal line with black points at the interspaces. Hind wing fuscous brown, the cilia creamy white. Underside brownish grey, the basal half, except inner area of hind wing, clothed with pale rufous scales.

Hab. GOLD COAST, Bibianaha (*Spurrell*), 1 ♂ type, Ashanti, Obuassi (*Bergman*), 1 ♀; S. NIGERIA, Ilesha (*Humfrey*), 1 ♂. *Evp.* 62-64 millim.

7536. *Euminucia orthogona*, n. sp. (Plate CCXIII. fig. 8.)

♂. Head and thorax bright rufous; antennæ with the shaft pale above; palpi whitish in front; pectus and legs pale rufous, the tibiæ and tarsi greyish brown; abdomen grey-brown, the hair at base rufous, the ventral surface pale ochreous. Fore wing pale

rufous, the terminal area tinged with grey-brown, the area before and below the antemedial line and between the postmedial and subterminal lines chocolate-brown; antemedial line greyish, obliquely curved from costa to middle of submedian fold where it is met by the obliquely downcurved postmedial line; orbicular a minute round chocolate-brown spot; reniform defined by chocolate-brown, constricted at middle; subterminal line faint, defining the outer edge of the dark area, arising from costa close to the postmedial line, bent inwards at vein 5 to near the postmedial line, then oblique to tornus; a series of whitish points just before termen. Hind wing fuscous brown, the basal half paler to median nervure and vein 2; the termen and cilia whitish towards apex. Underside pale brownish grey, the basal half of both wings clothed with ochreous scales except on inner areas.

Hab. GOLD COAST, Ashanti (*McDowall*), 1 ♂, Kumasi (*Whiteside*), 1 ♂ type. *Exp.* 56 millim.

Genus MINUCIA.

<i>Ophiodes</i> , Guea. Ann. Soc. Ent. Fr. 1841, p. 77 (nec Wagl. Rept. 1828).....	Type. <i>lunaris</i> .
<i>Minucia</i> , Moore, Lep. Ceyl. iii. p. 159 (1884).....	<i>lunaris</i> .
<i>Ascalapha</i> , Hübn. Tent. p. 2, ined. (nec <i>Ascalaphus</i> , Fabr. Neur. 1776).....	<i>lunaris</i> .

Proboscis fully developed; palpi upturned, the 2nd joint reaching to vertex of head and moderately scaled, the 3rd rather long and oblique; frons smooth, with sharp tuft of hair above; antennæ of male ciliated; thorax clothed with hair only and with sharp dorsal ridge-like crest; fore femora and tibiæ of male fringed with long hair, the hind tibiæ fringed with hair on lower side, the fore tibiæ not spined, the mid and hind tibiæ spined; abdomen with dorsal ridges of hair on basal segments but without crests. Fore wing with the apex slightly produced and acute, the termen evenly curved, crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the cell about one-third length of wing; veins 3, 4 from angle; 5 fully developed from just above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

- A. Fore wing with postmedial blackish spot on costa *viscotti*.
 B. Fore wing without postmedial blackish spot on costa *lunaris*.

7537. *Minucia viscotti*. (Plate CCXIV. fig. 1.)

Pseudophia wiskotti, Püng. Iris, xiv. p. 332 (1901); Wiskott, Iris, xviii. pl. x. ff. 11, 12.

Head and thorax ochreous tinged with rufous; palpi, frons, and antennæ red-brown; fore and mid tibiæ and the tarsi brown; abdomen ochreous tinged with rufous. Fore wing pale ochreous red-brown; antemedial line indistinct, pale faintly defined on inner side by brown, curved; a brown point in middle of cell; reniform defined by a few brown scales, narrow and constricted at middle; a postmedial blackish spot on costa with the whitish

postmedial line arising from it, slightly incurved below vein 4; subterminal line brownish, incurved below costa, excurved below vein 7, then indistinct, incurved to vein 4, then slightly waved, some brown suffusion beyond it at apex; a series of blackish points just before termen. Hind wing pale reddish, the terminal area tinged with fuscous; cilia pale reddish. Underside uniform pale reddish.

Ab. 1. Fore wing much greyer and more thickly irrorated with fuscous, the postmedial area whitish.

Ab. 2. Fore wing with diffused blackish ante- and postmedial bands.

Hab. PALESTINE, 1 ♀. *Exp.* 48 millim. Type† ♂, ♀ in Coll. Püngeler.

7538. *Minucia lunaris*.

Noctua lunaris, Schiff. Wien. Verz. p. 94 (1776); Hübn. Eur. Schmett., Noct. f. 322; Godt. Léop. Fr. v. p. 122, pl. 55. f. 2; Staud. Cat. Lep. pal. p. 245.

Noctua augur, Esp. Schmett. iv. p. 67, pl. 87. ff. 4-6 & pl. 88. f. 1 (1786).

Pseudophia rufa, Oberth. Ét. Ent. ix. p. 39, pl. 3. f. 11 (1884).

Pseudophia murina, Oberth. Ét. Ent. ix. p. 39, pl. 3. f. 12 (1884).

Pseudophia maura, Oberth. Ét. Ent. ix. p. 39, pl. 3. f. 13 (1884).

Head red-brown; frons with white line above; antennæ brown,

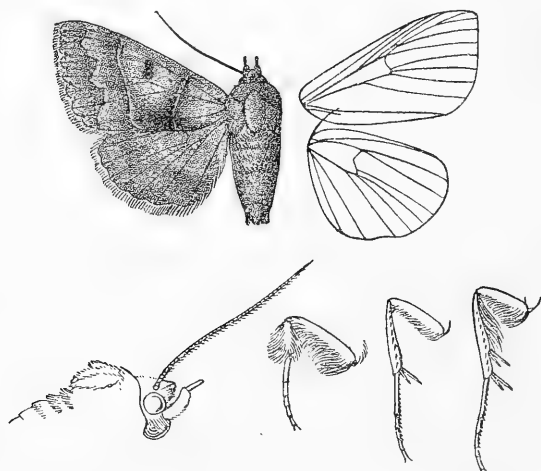


Fig. 99.—*Minucia lunaris*, ♂. $\frac{1}{2}$.

white towards base; thorax grey suffused with red-brown; pectus and legs whitish tinged with rufous, the fore and mid tibiæ and the tarsi grey-brown; abdomen grey suffused with reddish brown.

Fore wing olive-grey irrorated with dark brown; a black point in cell near base; antemedial line pale, defined on inner side by brown on costal half and on outer side by brown suffusion on inner half, oblique and slightly sinuous; a small black spot in middle of cell; reniform black, constricted at middle; postmedial line pale with a band of red-brown suffusion on its outer side, excurved to vein 4, then oblique and slightly excurved towards inner margin; a rufous streak on inner margin; subterminal line red-brown, waved, angled outwards below vein 7 and slightly below vein 4; a series of black points just before termen; cilia pale rufous. Hind wing ochreous suffused with reddish brown, the terminal half with fuscous brown; a narrow whitish medial band from costa to submedian fold; cilia brownish white. Underside brownish white; fore wing with fuscous discoidal lunule and faint fuscous postmedial patch between vein 5 and submedian fold.

Ab. 1. *rufa*. Fore wing nearly uniform deep rufous, the lines indistinct.

Ab. 2. *murina*. Similar but fore wing leaden grey with hardly any red-brown tinge.

Ab. 3. *maura*. Fore wing deep purple-brown, the lines distinct.

Hab. BRITAIN; FRANCE, Sand Coll.; GERMANY, Zeller Coll.; AUSTRIA; HUNGARY; SWITZERLAND, Frey Coll.; SPAIN; ITALY; ALGERIA (*Mrs. Nicholl*), 1 ♂; DALMATIA, Leech Coll.; GREECE; ARMENIA; ASIA MINOR, Pontus, Bithynia, Lydia. *Exp.* 50-62 millim.

Larva. Meyr. Brit. Lep. p. 161; Barrett, Lep. Brit. vi. p. 245; Hffm. Raup. p. 147, pl. 37. f. 1.

Brown; dorsal line moniliform; subdorsal line broad, black, enclosing pale spots; three fine dark lateral lines; spiracular line sometimes pale yellow; somites 4, 12, 13 with a pair of dorsal prominences; head brown; all the prolegs present. Food-plant: Oak. 7-8.

Genus ANUA.

	Type.
<i>Anua</i> , Wlk. xv. 1788 (1858)	<i>finifascia</i> .
<i>Stenopsis</i> , Mab. C. R. Soc. Ent. Belg. xxiii. p. cvii (1880)	<i>reducta</i> .

Proboscis fully developed; palpi upturned, the 2nd joint reaching to vertex of head and moderately scaled, the 3rd rather long and oblique; frons smooth with pointed tuft of hair above; eyes large, round; antennæ of male ciliated; thorax clothed with hair only and without crests; fore coxæ, femora, and tibiæ tufted with long hair, the mid and hind tibiæ slightly fringed with hair, the fore tibiæ not spined, the mid and hind tibiæ spined; abdomen with dorsal ridges of hair on basal segments. Fore wing rather long and narrow, the apex rounded, the termen crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the cell about one-third length of wing; veins 3, 4 from angle; 5 fully developed from just above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

SECT. I. Antennæ of male with ridges of scales on upperside of shaft to middle where it forms a sinus, then with slight ridges of scales for some distance; the mid tibiæ much excised on inner side to beyond middle; hind wing with some hair on basal costal area on underside and ridges of short hair on the veins beyond the cell.

7539. *Anua parcemacula*.

Ophiodes parcemacula, Lucas, P. Linn. Soc. N. S. W. (2) vi. p. 304 (1891).

Head and thorax whitish tinged with brownish grey; palpi blackish, white in front; frons and antennæ dark brown; pectus and femora yellowish, the latter fringed with rufous hair, the tibiæ and tarsi blackish; abdomen yellow tinged with rufous except on basal half of dorsum, the anal tuft blackish. Fore wing olive-grey faintly irrorated with red-brown; a faint obliquely curved whitish ante-medial line; a red-brown point in middle of cell; reniform



Fig. 100.—*Anua parcemacula*, ♂. 1.

black-brown with faint pale annulus, oblique bar-shaped; two curved postmedial series of red-brown points; a subterminal series of small red-brown spots with three black marks defined on outer side by whitish on it towards costa and some black and white striae towards inner margin, the area beyond it suffused with red-brown; a terminal series of blackish points; cilia red-brown. Hind wing yellow; a black subterminal patch diffused on outer side from costa to vein 3; the terminal area suffused with red-brown except

towards tornus; cilia white. Underside yellow, the terminal areas tinged with rufous; fore wing with black subterminal band between veins 6 and 2; hind wing with black patch from costa to vein 3.

Ab. 1. Paler.—W. Australia.

Hab. BR. N. GUINEA, Sogeri, 1 ♂; QUEENSLAND, 1 ♂, 1 ♀, Brisbane (*Turner*), 1 ♀, Moreton Bay (*Diggles*), 1 ♀; CENTR. AUSTRALIA, Hermannsburg (*Hillier*), 1 ♂; W. AUSTRALIA, Sherlock R. (*Clements*), 3 ♂, 1 ♀. *Exp.* 60–72 millim.

SECT. II. Antennæ and mid tibiae of male normal; hind wing with some woolly hair on basal area on underside and slight ridges of hair on the veins beyond the cell.

A. Hind wing of male on underside with fringe of hair on vein 1.

a. Abdomen banded with black; hind wing with black medial band *coronata*.

b. Abdomen not banded with black; hind wing with the basal area suffused with brown.

a¹. Abdomen yellow..... *hituensis*.

b¹. Abdomen brown *rectilinea*.

7540. *Anua coronata*.

Noctua coronata, Fabr. Syst. Ent. p. 596 (1775); Moore, Lep. Ceyl. iii. p. 158, pl. 167. f. 1, & pl. 166. f. 5; Hmps. Moths Ind. ii. p. 502.

Noctua leonina, Fabr. Syst. Ent. p. 596 (1775).

Noctua ancilla, Fabr. Ent. Syst. iii. 2, p. 17 (1794).

Corycia magica, Hübn. Zutr. Ex. Schm. iii. p. 32. ff. 535–6 (1827).

Ophiodes ponderosa, Mab. Ann. Soc. Ent. Fr. (5) ix. p. 346 (1879).

Head and thorax red-brown tinged with grey; pectus ochreous; abdomen yellow dorsally banded with black, ventrally tinged with rufous. Fore wing red-brown suffused with purple-grey and slightly irrorated with black; antemedial line brown, obliquely incurved; a small brown annulus in middle of cell; reniform defined by brown, its annulus represented by small black spots defined by grey, a brownish shade above it on costa; postmedial line brown, oblique, slightly bent inwards to costa and inner margin; the postmedial costal area with a brown shade; subterminal line pale defined on each side by brown, oblique and nearly straight; a series of black points just before termen. Hind wing yellow; an oblique black-brown medial band from costa to submedian fold; a black-brown subterminal band from just below costa to submedian fold, wide towards costa where its outer edge is excurved. Underside yellow, the terminal areas tinged and irrorated with brown except towards tornus; fore wing with a fuscous subterminal patch between veins 5 and 2.

Ab. 1. *magica*. Fore wing with the reniform filled in with black.

Ab. 2. *leonina*. Fore wing with grey annulus to reniform but without black.

Ab. 3. *ancilla*. Fore wing with the reniform obsolete.

Hab. MADAGASCAR, type ♂ *ponderosa* in Coll. Mabilie; PUNJAB, 1 ♂, Dharmasāla (*Hocking*), 1 ♂, 1 ♀, Manpuri, 1 ♂, Moghal Serai (*Betton*), 1 ♀; NEPAL (*Hardwicke*), 1 ♂; SIKHIM (*Möller*), 2 ♂, 2 ♀; ASSAM (*Badgley*), 1 ♀, Silhet (*Stanisforth*), 1 ♂, 2 ♀, Dibrugrah (*Ward*), 1 ♂, 1 ♀; BENGAL, Calcutta, 1 ♀, Ganjam, 1 ♀; CENTR. INDIA, Raipur, 1 ♀; BOMBAY, Ratnagiri (*Jayaker*), 1 ♂; MADRAS, 1 ♀, Nilgiris (*Hampson*), 1 ♂; CEYLON, 1 ♀;

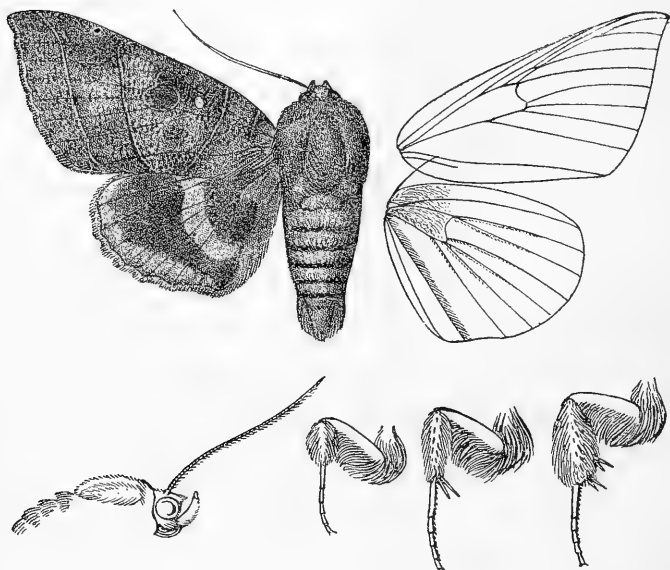


Fig. 101.—*Anua coronata*, ♂. 1.

BURMA, Thayetmyo (*Watson*), 1 ♂; ANDAMANS, 1 ♀; PENANG, 1 ♀; SINGAPORE (*Ridley*), 3 ♀; DINDING IS. (*Ridley*), 1 ♀; PHILIPPINES, Taytai (*Betton*), 1 ♂; JAVA (*Horsfield*), 1 ♂; CHRISTMAS I. (*Andrews*), 2 ♀; COCOS KEELING I. (*Wood-Jones*), 1 ♀; N. AUSTRALIA, Port Darwin (*Buckland*), 2 ♀; GILBERT IS., Apia (*de la Garde*), 1 ♂. Type and type *leonina* in Banksian Coll. Exp. 72-96 millim.

Larva. Moore, Lep. Ceyl. iii. p. 158, pl. 166. f. 5.

Dull sienna-brown longitudinally striped with black-brown; a dorsal black spot on 8th somite; paired black dorsal tubercles on 10th and 11th somites; a lateral yellow-edged spot on 5th somite; ventral surface dark; head striped with black. Food-plant: *Quisqualis indica*.

7541. *Anua hituensis*. (Plate CCXIV. fig. 2.)*Ophisma hirtuense*, Pag. J.B. Nass. Ver. xxxvii. p. 235, pl. vii. f. 2 (1884).*Thyas amideta*, Turner, Tr. R. Soc. S. Austr. xxvii. p. 8 (1903).

♂. Head and thorax red-brown tinged with grey; abdomen fulvous yellow, the ventral surface rufous. Fore wing red-brown tinged with grey and irrorated with black; antemedial line red-brown defined on outer side by yellowish, oblique; reniform with very faint blackish outline; postmedial line red-brown defined on inner side by yellowish, inwardly oblique, the costal area beyond it with some red-brown suffusion; traces of a maculate incurved subterminal line ending at tornus, dark towards costa, then pale; a series of black points just before termen and a fine pale line at base of cilia. Hind wing ochreous yellow suffused with brown, the inner area, an oblique postmedial band from discal fold to tornus, and the termen rather yellower; a blackish subterminal shade, broad below apex, narrowing to a point at submedian fold. Underside ochreous yellow tinged with brown; fore wing with faint blackish discoidal spot and subterminal shade between veins 5 and 2.

♀. Hind wing with less yellow.

Hab. AMBOINA, Hitu; DUTCH N. GUINEA, Mimica R. (*Wollaston*), 2 ♀; QUEENSLAND, 1 ♂, Townsville (*Dodd*), 1 ♂, Kuranda (*Dodd*), 1 ♀. *Exp.* 74–80 millim.

*7542. *Anua rectilinea*.*Ophisma rectilinea*, Snell. Tijds. v. Ent. xx. p. 35, pl. ii. f. 16 (1877).

Head, thorax, and abdomen grey-brown. Fore wing grey-brown; a faint dark subbasal shade from costa to submedian fold; antemedial line greyish, defined on inner side by slight dark suffusion, oblique to submedian fold and incurved at vein 1; a black point in middle of cell; reniform a dark lunule; postmedial line ochreous defined on outer side by brown, erect, straight; a brown subterminal shade and fine waved line just before termen. Hind wing grey-brown; an oblique pale postmedial band from costa to submedian fold; some greyish on terminal area at middle; the underside ochreous, the apical area suffused with brown.

Hab. JAVA. *Exp.* 66 millim. This species is unknown to me.

B. (*Anua*). Hind wing of male on underside without fringe of hair on vein 1.

a. Abdomen yellow.

a¹. Abdomen without blackish band towards extremity.a². Fore wing with the subterminal line obliquely incurved *pelor*.b². Fore wing with the subterminal line sinuous.a³. Fore wing pale yellow-green except the terminal area *tirhaca*.b³. Fore wing bright yellow with the terminal area rufous *cenricci*.

- c*³. Fore wing wholly suffused with red-brown *arfaci*.
*d*³. Fore wing pale flesh-colour.
*a*⁴. Fore wing with the subterminal line distinct below vein 6 *tongaensis*.
*b*⁴. Fore wing with the subterminal line almost obsolete below vein 6 *indiscriminata*.
*e*². Fore wing violaceous grey *disjungens*.
*b*¹. Abdomen with blackish band towards extremity.
*a*². Fore wing suffused with red-brown.
*a*³. Hind wing with broad subterminal black band *discriminans*.
*b*³. Hind wing with narrow black subterminal band between vein 6 and submedian fold *pygospila*.
*c*³. Hind wing with traces of a subterminal line, sometimes with black spots on it at veins 6 and 3 *sublutea*.
*b*². Fore wing yellowish white; hind wing without subterminal band *intacta*.
b. Abdomen not yellow.
*a*¹. Fore wing with the subterminal line strongly ex-curved below vein 7 and at middle.
*a*². Fore wing blue-grey *dianaris*.
*b*². Fore wing whitish more or less suffused with red-brown.
*a*³. Fore wing with the antemedial line blackish ... *umbrilinea*.
*b*³. Fore wing with the antemedial line whitish.
*a*⁴. Fore wing with the postmedial line ex-curved below costa.
*a*⁵. Fore wing slightly tinged with red-brown except on terminal area *tettensis*.
*b*⁵. Fore wing strongly suffused with red-brown except on terminal area *mejanesi*.
*b*⁴. Fore wing with the postmedial line not ex-curved below costa.
*a*⁵. Fore wing with two black spots before the subterminal line below costa.
*a*⁶. Fore wing grey-white hardly tinged with brown *alticola*.
*b*⁶. Fore wing strongly suffused with brown. *olista*.
*b*⁵. Fore wing without black spots before sub-terminal line *indistincta*.
*b*¹. Fore wing with the subterminal line strongly ex-curved below vein 7 and very slightly at middle ... *triphænoides*.
*c*¹. Fore wing with the subterminal line slightly ex-curved below vein 7 and below middle.
*a*². Fore wing with the postmedial line slightly ex-curved below costa, then oblique *verecunda*.
*b*². Fore wing with the postmedial line ex-curved to vein 5, then oblique *selenaris*.
*c*². Fore wing with the postmedial line ex-curved below costa and at middle, and incurved at discal fold.
*a*³. Fore wing with the ante- and postmedial lines not connected by a double streak in submedian fold *dilecta*.
*b*³. Fore wing with the ante- and postmedial lines connected by a double streak in submedian fold *finifascia*.

- d*¹. Fore wing with the subterminal line excurved below vein 7, then incurved to inner margin.
*a*². Fore wing with the postmedial line excurved to vein 4, then incurved.
*a*³. Fore wing with the antemedial line slightly oblique and waved *violascens*.
*b*³. Fore wing with the antemedial line oblique and straight *tumidilinea*.
*b*². Fore wing with the postmedial line excurved below costa, at middle and to inner margin *recurvata*.
*c*². Fore wing with the postmedial line excurved below costa, then oblique, sinuous, and joining the antemedial line above inner margin *hopei*.
*e*¹. Fore wing with the subterminal line excurved below vein 7 and dentate above and below vein 4 *salita*.
*f*¹. Fore wing with the subterminal line excurved below vein 7, then straight *melaconisia*.
*g*¹. Fore wing with the subterminal line almost straight throughout.
*a*². Fore wing with the ground-colour greenish ochreous *trapezium*.
*b*². Fore wing with the ground-colour purplish red-brown *circumferens*.

***7543. *Anua pelor*. (Plate CCXIV. fig. 10.)**

Ophiodes pelor, Mab. C. R. Ent. Soc. Belg. xxv. p. lvii (1881).

♂. Head and thorax ochreous white slightly tinged with rufous; antennæ blackish; palpi orange-fulvous, the 3rd joint brown; lower part of frons red-brown; pectus and legs orange-yellow, the fore and mid tibiæ and tarsi and the hind tarsi blackish; abdomen orange-yellow. Fore wing ochreous suffused with rufous, the costal area to beyond middle and the veins ochreous; orbicular a small round black spot; reniform rufous with ochreous annulus, narrow, oblique, constricted at middle; postmedial line ochreous defined on outer side by rufous, very oblique, straight; subterminal line ochreous, obliquely incurved. Hind wing orange-yellow, with broad black-brown subterminal band from apex to vein 1, towards which it narrows somewhat, the area beyond it grey irrorated with brown; cilia ochreous white. Underside pale yellow, the terminal area of fore wing and costal area of hind wing slightly irrorated with brown; fore wing with black-brown postmedial patch between veins 5 and 2.

Hab. MADAGASCAR, type ♂ in Coll. Mabille. *Exp.* 112 millim.

7544. *Anua tirhaca*.

Noctua tirhaca, Cram. Pap. Exot. ii. p. 116, pl. 172. f. E (1780); Staud. Cat. Lep. Pal. p. 246.

Noctua vesta, Esp. Schmett. iv. pl. 141. f. 1 (1789).

Noctua auricularis, Hübn. Eur. Schmett., Noct. ff. 321, 777-81 (1802).

Noctua tirrhæa, Treit. Schmett. Eur. v. 3, p. 300 (1826); Godt. Lép. Fr. v. p. 119, pl. 55. f. 1.

Ophiodes hottentota, Guen. Noct. iii. p. 229 (1852).

Ophiodes separans, Wlk. xiv. 1357 (1858); Semper, Reisen Phil., Schmett. ii. p. 560.

Ophiusa tirrhaca, Hmps. Moths Ind. ii. p. 503 (1894).

Head and thorax yellow tinged with pale green; palpi fuscous brown, white in front; frons rufous at sides; antennæ rufous; pectus and femora yellow tinged with rufous, the tibiæ and tarsi grey-brown; abdomen yellow. Fore wing pale yellow-green; a faint obliquely curved antemedial line; a red-brown point in middle of cell; reniform red-brown; a black-brown postmedial spot on costa with the faint postmedial line arising from it, excurved beyond lower angle of cell, then incurved and meeting the

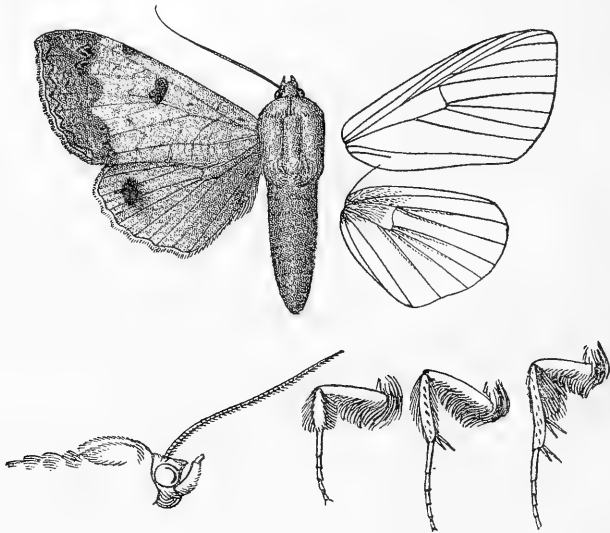


Fig. 102.—*Anua tirrhaca*, ♂. 1.

antemedial line above inner margin; a diffused wedge-shaped fuscous subterminal patch from costa with the waved whitish subterminal line on it, a black point on its inner side below vein 7, the line then red-brown, incurved, excurved at veins 4, 3, then incurved and waved, the area beyond it suffused with red-brown. Hind wing yellow; a blackish postmedial patch from below vein 7 to vein 3, expanding somewhat above. Underside yellow, the fore wing with brown subterminal bar between veins 5 and 2.

Ab. 1. Hind without postmedial black patch.

Ab. 2. *auricularis*. Hind wing with obsolescent postmedial band from below vein 7 to above tornus.

Ab. 3. *vesta*. Hind wing with the postmedial band broader and blacker.

Ab. 4. *separans*. Hind wing with the postmedial band broad, black, and from just below costa to just above inner margin.

Ab. 5. *hottentota*. Fore wing with the terminal area not suffused with red-brown; hind wing with the band very broad and almost terminal.

Hab. S. FRANCE, Zeller and Frey Colls.; GERMANY, Mutzell Coll.; AUSTRIA, Tirol; DALMATIA, Leech Coll.; GREECE, Merlin Coll.; ASIA MINOR, Pontus, Bithynia; CYPRUS; SYRIA, Leech Coll.; ALGERIA, CANARIES; ST. HELENA (*Wollaston*), 3 ♂, 1 ♀; SOKOTRA, Adho Dimellus (*O. Grant*), 1 ♂, 1 ♀; SOMALILAND (*Gillett*), 1 ♀; MASHONALAND, Salisbury (*Marshall*), 1 ♂, 3 ♀; TRANSVAAL, Waterburg (*Wilde*), 1 ♂, Pretoria (*Zutrencka*), 1 ♂; NATAL (*Marshall*), 1 ♀; CAPE COLONY (*Drege*), 1 ♀; MADAGASCAR, Fianarantsoa (*Cowan*), 1 ♂; RODRIGUEZ (*Manders*), 1 ♂; MAURITIUS (*Manders*), 1 ♀; CENTR. CHINA, Kiukiang (*Pratt*), 1 ♂; W. CHINA, Chang-yang (*Pratt*), 1 ♀, Omei-shan, 1 ♀, Kwei-chou, 1 ♂, Chia-kou-ho (*Pratt*) 1 ♀; PUNJAB, 1 ♀ type *separans*, Kulu, Sultanpur (*G. Young*), 1 ♀, Dharmasala (*Hocking*), 3 ♂, 4 ♀, Kasauli, 1 ♂, Allahabad, 1 ♂; SIKHIM, 1 ♂; ASSAM (*Badgley*), 1 ♂, 1 ♀, Shillong (*Parish*), 1 ♂; BENGAL, Calcutta, 1 ♀; BOMBAY (*Swinhoe*), 1 ♂, 1 ♀, Mhow (*Swinhoe*), 1 ♂, 1 ♀, Ratnagiri (*Jayaker*), 1 ♀; MADRAS, Nilgiris (*Hampson*), 1 ♀; CEYLON, 1 ♀; PHILIPPINES, Luzon, Bohol, Mindanao. *Exp.* 66-80 millim.

Larva. Kirby, Butt. & Moths Eur. p. 282; Hffm. Raup. p. 147, pl. 37. f. 2.

Grey with pale grey lateral stripes, the ventral surface with black spots between the prolegs. Food-plants: *Pistacia lentiscus*, *Cistus*, *Rhus coriaria*. 7-8.

*7545. *Anua cenricci*. (Plate CCXIV. fig. 3.)

Ophiura kenricki, Beth.-Baker, Nov. Zool. xiii. p. 259 (1906).

♂. Head, thorax, and abdomen orange-yellow; palpi grey mixed with red-brown; frons bright rufous at sides; medial part of tegulae, a broad stripe on dorsum of thorax, and stripes on shoulders bright rufous; tibiae and tarsi grey mixed with red-brown. Fore wing orange-yellow with a greenish tinge, the terminal area bright rufous with some fuscous at apex and on inner area, extending on costa and in discal fold to postmedial line, and on inner margin to a point before middle; dark points in cell at and near base; antemedial line absent; orbicular a small grey spot defined by rufous; reniform with greyish centre defined by rufous, constricted at middle, and rather figure-of-8-shaped; postmedial line formed of fine rufous striae, arising from below costa, obliquely excurved to vein 4, then very obliquely incurved; subterminal line greyish, oblique and dentate from costa to vein 6, then obsolescent to vein 3, angled inwards to near postmedial line in discal fold and outwards at vein 4, then greyish defined on each side by fuscous, strongly angled inwards at vein 2 and outwards in submedian fold, then incurved and with large elliptical grey patch

defined by fuscous beyond it extending to tornus; a series of small grey-white spots just before termen; cilia grey-white at tips. Hind wing orange; the underside suffused with whitish except towards base.

Hab. BR. N. GUINEA, Mafalu (*Pratt*), type † ♂ in Coll. Bethune-Baker. *Exp.* 78 millim.

*7546. *Anua arfaci*. (Plate CCXIV. fig. 4.)

Ophiusa arfaki, Beth.-Baker, A. M. N. H. (8) vi. p. 445 (1910).

♂. Head and thorax greyish ochreous, the head and tegulæ tinged with rufous; palpi brown; frons with rufous band; antennæ brown except towards base; shoulders with rufous patches; pectus and femora tinged with rufous, the tibiæ and tarsi fuscous brown; abdomen orange-yellow, the crest at base and ventral surface tinged with rufous. Fore wing greyish ochreous irrorated with brown, the inner area except at base and the terminal area suffused with rufous; blackish points on median nervure near base and in middle of cell; reniform defined by rufous and with some blackish in centre, constricted at middle; subterminal line rather diffused rufous, blackish with faint whitish marks on it toward costa, angled outwards at vein 7, where it is met by a diffused oblique blackish streak from apex, then oblique to below vein 5, angled outwards below vein 4, then incurved; traces of a crenulate line just before termen; cilia whitish at tips. Hind wing orange-yellow. Underside of both wings yellow, the terminal area of fore wing and apical area of hind wing slightly tinged with fuscous.

Hab. DUTCH N. GUINEA, Arfak Mts. (*Pratt*), type † ♂ in Coll. Kenrick. *Exp.* 80 millim.

7547. *Anua tongaensis*, n. sp. (Plate CCXIV. fig. 11.)

♀. Head and thorax pale ochreous yellow; palpi fuscous brown slightly irrorated with white; sides of frons, antennæ, and shoulders red-brown; tibiæ and tarsi blackish brown; abdomen orange. Fore wing pale ochreous yellow irrorated with a few black scales, the costal edge fulvous yellow; traces of a pale oblique sinuous antemedial line; a dark point in middle of cell; reniform with traces of a brownish outline, and with dark points in upper and lower parts, small; traces of a minutely waved pale postmedial line faintly defined on outer side by brown striæ, incurved below vein 4; subterminal line red-brown with small dark spots on it, blackish towards costa, excurved below vein 7 where it is met by an oblique dark shade from apex, then bent inwards, excurved at middle, then incurved and ending at tornus, the area beyond it suffused with red-brown with a few whitish scales at costa; a slight crenulate dark line before termen with black points at the interspaces; cilia with a dark line through them and whitish tips except towards apex. Hind wing orange, the terminal area black

to vein 1 towards which it narrows, its inner edge indented at submedian fold, the termen narrowly orange with a slight waved brown line before it; cilia orange. Underside of fore wing orange, the terminal area slightly irrorated with brown, a black subterminal patch with slightly waved edges between vein 6 and submedian fold; hind wing with diffused dark subterminal band from costa to vein 2.

Hab. FRIENDLY Is., Vavau (*Eclipse Exp.*), 1 ♀, Tongatabu (*Lister*), 1 ♀ type. *Exp.* 82 millim.

7548. *Anua indiscriminata*.

Minucia discriminans, Moore, Lep. Ceyl. iii. p. 160, pl. 166. f. 4 (nec Wlk.).

Minucia indiscriminata, Hmps. Ill. Het. B.M. ix. p. 111 (1893); id. Moths Ind. ii. p. 503.

Head and thorax yellowish tinged with rufous, the vertex of head and shoulders sometimes whitish; palpi brown, white in front; frons deep rufous with white line above; antennæ brown; pectus and legs yellow, the tibiæ and tarsi grey-brown. Fore wing pale flesh-yellow, the terminal area suffused with rufous; a minute brown annulus in middle of cell; reniform defined by rufous and with brownish striga in centre, constricted at middle; traces of a postmedial series of rufous strigæ, incurved below vein 4 and with traces of a series of rufous points beyond it; subterminal line whitish defined on outer side by brown from costa to vein 6, angled outwards and with black spot before it below vein 7, then faint, rufous, oblique to vein 5 and excurved at vein 4, a whitish patch beyond it below costa followed by an oblique brown shade from apex; a series of blackish points before termen. Hind wing yellow with a wedge-shaped subterminal black patch from above vein 6 to vein 2. Underside of fore wing yellow with a subterminal blackish patch between veins 5 and 2.

Hab. ASSAM, Silhet, 1 ♀; CEYLON, 1 ♂, Pundaloya (*Green*), 2 ♀ type; PHILIPPINES, Luzon, Bohol. *Exp.* 74-80 millim.

Larva. Hmps. Ill. Het. B.M. ix. p. 111, pl. 176. f. 23.

Ophiodes separans, Semper, Verh. zool.-bot. Ges. Wien, xvii. p. 702, pl. xxiii. f. 6 (nec Wlk.); id. Reisen Phil., Schmett. ii. p. 560, pl. S. ff. 10-11.

Pale brown with numerous waved black lines with series of black specks between them; ventral surface paler with some red between each pair of legs and black patches between the prolegs; 11th somite with two small dorsal prominences; all the prolegs present. Food-plants: *Eucalyptus*, *Carea*, and other *Myrtaceæ*.

7549. *Anua disjungens*. (Plate CCXIV. fig. 9.)

Ophiodes disjungens, Wlk. xiv. 1360 (1858).

Head and thorax whitish tinged with brown, the vertex of head, tegulæ in front, and shoulders whiter; palpi brown, whitish in

front; frons deep rufous; antennæ brown, the shaft white above towards base; pectus and legs yellow tinged with rufous, the tibiæ and tarsi grey-brown; abdomen yellow, the ventral surface suffused with rufous. Fore wing violaceous grey tinged with brown; traces of an oblique pale antemedial line; a dark brown point in middle of cell; reniform dark brown, somewhat constricted at middle; traces of a pale postmedial line, incurved below vein 4; subterminal line whitish defined on outer side by brown from costa to vein 6, excurved and with slight black spot before it below vein 7, then faint, rufous, incurved to vein 5 and excurved at vein 4; a series of slight brownish points just before termen. Hind wing yellow with a blackish patch just before termen from below costa to vein 2 and a slight spot at vein 1. Underside of fore wing yellow, the terminal area suffused with rufous, a blackish subterminal patch between vein 5 and submedian fold.

Ab. 1. Fore wing irrorated with fuscous, the postmedial line with series of small dark spots on it.—Timor.

Hab. TIMOR (*H. O. Forbes*), 1 ♀; BR. N. GUINEA, Port Moresby, 1 ♀; QUEENSLAND, Moreton Bay (*Diggles*), 1 ♀ type, Brisbane (*Turner*), 1 ♂, 1 ♀; N. AUSTRALIA, Port Darwin (*Buckland*), 1 ♂. *Exp.* 68-76 millim.

7550. *Anua discriminans*.

Ophiodes discriminans, Wlk. xiv. 1358 (1858); Hmps. Ill. Het. B.M. ix. p. 111, pl. 165. f. 13; id. *Moths Ind.* ii. p. 503; Semper, *Reisen Phil.*, Schmett. ii. p. 561.

♀. Head and thorax rufous; palpi brown, whitish in front; frons deep rufous with a whitish line above; antennæ brown; pectus yellow tinged with rufous; legs whitish tinged with brown; abdomen yellow with a dorsal blackish patch on penultimate segment. Fore wing yellowish rufous irrorated with a few brown scales; a brown point at base below the cell; faint traces of an obliquely curved antemedial line; reniform defined by brown and with brown striga in centre, some whitish in its lower part; postmedial line represented by a series of slight brown striæ, incurved below vein 4; subterminal line with two small black spots defined on outer side by whitish below costa, the lower triangular, small white spots between vein 3 and submedian fold, then an incurved white line defined on outer side by brown and with white patch irrorated with brown beyond it at tornus, defined above by a brown streak; a diffused oblique brown mark from apex and a series of points before termen; cilia brown, white at tips. Hind wing yellow; a broad subterminal blackish band from just below costa to above tornus. Underside of fore wing yellow, a subterminal blackish band between vein 5 and submedian fold, the tornus irrorated with black.

Hab. CEYLON (*Templeton*), 2 ♀ type, Colombo (*Nietner*), 1 ♀; PHILIPPINES, Bohol. *Exp.* 64-68 millim.

***7551. *Anua pygospila*.**

Pseudophia pygospila, Snell. Tijds. v. Ent. xxiii. p. 98, pl. 8. f. 1 (1880).

♀. Head and thorax yellow suffused with rufous, the patagia with small black spots; pectus yellow; legs brown; abdomen yellow with a black dorsal band on penultimate segment. Fore wing rufous slightly irrorated with blackish; a black point in middle of cell; reniform defined by blackish and with some blackish in centre; subterminal line represented by small dentate black spots below veins 7, 4, 3, 2 defined on outer side by whitish, then incurved and with a large elliptical whitish spot irrorated with brownish beyond it at tornus. Hind wing yellow; a narrow blackish subterminal band from vein 6 to submedian fold.

Hab. CELEBES. *Exp.* 60 millim. This species is unknown to me.

7552. *Anua sublutea*. (Plate CCXIV. fig. 12.)

Ophiusa sublutea, Beth.-Baker, Nov. Zool. xiii. p. 259 (1906).

♀. Head and thorax bright orange-rufous; palpi greyish fuscous; sides of frons deep rufous; tibiae and tarsi greyish fuscous; abdomen orange-yellow, the terminal segments suffused with fuscous, the anal tuft yellow. Fore wing bright rufous irrorated with a few black scales, the base yellowish; subbasal and antemedial lines absent; orbicular a minute bluish white spot faintly defined by black; reniform slightly tinged with bluish white and faintly defined by brown, oblique, strongly constricted at middle and figure-of-eight shaped; traces of a double minutely waved oblique postmedial line; subterminal line bluish white, obsolescent at middle, oblique and sinuous from costa, angled outwards below vein 7 and with black spot before it, strongly angled inwards at discal fold, then outwards below vein 4 and with small black spot before it, then oblique, sinuous, and defined on each side by brown towards inner margin, with large round blue-grey spot beyond it towards tornus; a faint crenulate line just before termen; cilia grey. Hind wing orange-yellow, with faint traces of subterminal line with small black spots on it at veins 6 and 5; cilia ochreous white slightly tinged with brown. Underside of both wings yellow, the fore wing and costal half of hind wing tinged and irrorated with brown.

Ab. 1. Hind wing without the black spots on the subterminal line.—Ké Is.

Hab. LITTLE KÉ IS., 1 ♀; BR. N. GUINEA, Ekeikei (*Pratt*), type ♀ in Coll. Bethune-Baker, Mafalu, Aroa R. *Exp.* 64 millim.

7553. *Anua intacta*, n. sp. (Plate CCXIV. fig. 5.)

♂. Head and thorax yellow slightly tinged with rufous; palpi, frons, and antennae dark brown; pectus and legs yellow tinged

with rufous, the tibiæ and tarsi dark brown; abdomen yellow, the three terminal segments with diffused blackish bands. Fore wing yellowish white tinged with rufous and irrorated with black-brown; a dark point in middle of cell; reniform defined by rufous, constricted at middle; traces of a double postmedial series of brown strigæ, incurved below vein 4; subterminal line indistinct, rufous, white angled outwards and with black spot before it below vein 7, then incurved to vein 4 below which there is a black point defined on outer side by white, incurved and defined on outer side by whitish towards inner margin; a slight oblique brown shade from apex, a series of slight brown points before termen and a fine brown terminal line. Hind wing uniform yellow. Underside of fore wing yellow, the terminal area tinged with rufous and striated with brown except towards tornus.

Hab. N. AUSTRALIA, Port Darwin (*J. J. Walker*), 1 ♂ type. *Exp.* 72 millim.

7554. *Anua dianaris*.

Ophiodes dianaris, Guen. Noct. iii. p. 232 (1852); Hmps. Nat. Hist. Sokotra, p. 328, pl. xx. f. 15.

♂. Head and thorax grey, the palpi, frons, and antennæ browner; pectus and legs grey tinged with brown; abdomen pale yellow, the extremity and ventral surface grey-brown. Fore wing blue-grey irrorated with blackish; an indistinct oblique slightly sinuous pale antemedial line; a dark point in middle of cell; reniform defined by brown and with brown striga in centre, constricted at middle; traces of an oblique sinuous postmedial line; subterminal line grey defined on each side by brown and with brown suffusion before it, angled outwards and with black before it below vein 7, excurved and with black before it below vein 4; some brown suffusion on the veins before middle of termen; a slight waved brown line with black points on it just before termen. Hind wing pale yellowish tinged with rufous; a diffused brown band on terminal area, broad towards costa and narrowing to a point at vein 1; a fine waved brown terminal line; cilia white. Underside of fore wing white tinged with brown, a diffused brown band before termen except towards inner margin; hind wing white tinged with yellow towards base, a diffused brown subterminal band from costa to vein 2.

♀. Head, thorax, and fore wing suffused with fuscous brown; hind wing with the blackish area very broad and extending to before middle.

Hab. SOKOTRA, Adho Dimellus (*O. Grant*), 1 ♂, 1 ♀; ABYSSINIA; TRANSVAAL, Lydenburg (*Krantz*), 1 ♀; NATAL, Estcourt (*Hutchinson*), 1 ♂, 2 ♀; ORANGE R. COLONY, Kroonstad (*Eckersley*), 1 ♀; CAPE COLONY, Knysna, 1 ♂. *Exp.* 60 millim.

7555. *Anua umbrilinea*. (Plate CCXIV. fig. 6.)*Ophiusa umbrilinea*, Hmps. Ann. S. Afr. Mus. ii. p. 342 (1902).

♂. Head and thorax grey-brown mixed with some red-brown; pectus and legs ochreous white, the tibiæ and tarsi grey-brown; abdomen ochreous white. Fore wing ochreous white suffused with brown and irrorated with dark brown; subbasal line blackish, from costa to submedian fold; antemedial line blackish, expanding into a spot at costa where it is bent inwards, then oblique and sinuous; reniform defined by brown, constricted at middle and with brown marks in upper and lower parts; postmedial line blackish, expanding into a spot at costa, excurved below costa, then slightly waved, oblique below vein 5; subterminal line whitish defined on inner side by brown suffusion and with some black before it towards costa, at middle and at inner margin, angled outwards below vein 7 and at middle, the interspaces beyond it with slight whitish streaks; a waved brown line before termen defined on outer side by whitish; cilia white at tips. Hind wing white, the inner area clothed with pale rufous hair; the terminal area broadly fuscous black, leaving a series of small white spots on termen; cilia white, fuscous at base between veins 4 and 2. Under-side of both wings white with the terminal area fuscous brown narrowing to tornus and leaving a series of small white spots on termen.

Hab. DAMARALAND, 1 ♂ type. *Exp.* 54 millim.

7556. *Anua tettensis*. (Plate CCXV. fig. 17.)*Ophiodes tettensis*, Hopff. Mon. Königl. Akad. Wissen. 1857, p. 422; id.

Peters's Reise Moz., Ins. p. 436, pl. xxviii. f. 12.

Ophisma expedita, Wlk. xiv. 1375 (1858).*Ophiodes cameronis*, Plotz, Stett. Ent. Zeit. xli. p. 299 (1880).

Head and thorax yellowish white faintly tinged with rufous; palpi brown, white in front; frons and antennæ rufous; pectus and legs white, the fore and mid tibiæ and tarsi brown; abdomen ochreous white, the ventral surface white. Fore wing yellowish white faintly tinged with rufous especially on postmedial area; antemedial line white faintly defined on each side by brown, oblique; a dark point in middle of cell; reniform a small oblique brown bar defined by dark brown, somewhat constricted at middle; postmedial line white slightly defined on outer side by brown, excurved to vein 4, then incurved and excurved above inner margin; subterminal line white defined on inner side by dark brown, excurved and with some black before it below vein 7, excurved at middle and above inner margin, followed by some brown suffusion, then by white with brownish spots beyond it before the crenulate brown line just before termen; cilia tinged with red-brown. Hind wing white, the inner area slightly tinged with red-brown; a diffused blackish band before termen, narrowing to a point at vein 1; a waved brown line at middle of termen, the

cilia beyond it tinged with brown. Underside of fore wing white with fuscous subterminal band except at inner margin; hind wing white with diffused fuscous subterminal band from costa to vein 2.

Ab. 1. Thorax and fore wing slightly more tinged with rufous.

Hab. CAMEROONS; CONGO (*Curror*), 1 ♀ type *expedita*; BR. C. AFRICA (*de Jersey*), 1 ♀; N.E. RHODESIA, Loangwa Valley (*Neave*), 1 ♂, 1 ♀; MOZAMBIQUE. *Exp.* 44 millim.

7557. *Anua mejanesi*. (Plate CCXIV. fig. 8.)

Ophiodes mejanesi, Guen. Noct. iii p. 232 (1852); Hmps. Moths Ind. ii. p. 498.

Head and thorax bright rufous; palpi dark brown; frons with white line above; antennæ dark brown, white in front towards base; pectus and legs ochreous tinged with rufous, the fore and mid tibiæ dark brown, the tarsi dark brown ringed with white; abdomen grey-brown. Fore wing bright rufous with pale striae and slight black irroration, the terminal area purple-grey; antemedial line indistinct, pale, obliquely curved; orbicular a minute round black spot; reniform red-brown defined by blackish, small; postmedial line indistinct, pale slightly defined on outer side by red-brown, excurved to vein 4, then oblique to submedian fold and sinuous to inner margin; three white points on postmedial part of costa; subterminal line grey defined on inner side by deep rufous and on outer by fuscous black, excurved below vein 7, then bent inwards, incurved at vein 3, and ending at tornus; the terminal area with some brown suffusion and black irroration at middle; a crenulate brown line just before termen; cilia brown with a fine white line at base and greyish line at middle. Hind wing ochreous suffused with brown, the terminal area suffused with fuscous; a waved dark terminal line except towards apex and tornus; cilia whitish, brown at middle. Underside ochreous white, the terminal area suffused with greyish fuscous.

Ab. 1. Fore wing purple-grey to the subterminal line.

Hab. SENEGAL; CONGO (*Curror*), 1 ♀, Katanga, Kambove (*Neave*), 1 ♂; SOUDAN, White Nile (*Dunn*), 1 ♀; BR. C. AFRICA, Fort Mangoché (*Neave*), 1 ♀, Blantyre (*Ambruster*), 1 ♀, Lr. Shiré Valley (*Neave*), 1 ♀; TRANSVAAL, Lydenburg, 1 ♀; NATAL, Durban (*Leigh*), 1 ♀; PUNJAB, Allahabad, 1 ♀; BOMBAY (*Swinhoe*), 1 ♂, 1 ♀, Kanara (*Ward*), 1 ♀; MADRAS, Nilgiris (*Hampson*), 2 ♀. *Exp.* 46-54 millim.

7558. *Anua alticola*, n. sp. (Plate CCXIV. fig. 7.)

♂. Head and thorax white tinged with rufous; palpi, frons, antennæ, and the tibiæ and tarsi grey-brown; abdomen whitish tinged with brown. Fore wing pale brownish grey sparsely irrorated with black, the terminal area suffused with rufous; antemedial line white, obliquely curved; a black point in middle of cell;

reniform rufous defined by brown, narrow, oblique; postmedial line white with a blackish spot at costa, slightly excurved beyond lower angle of cell, then incurved; subterminal line white with black spots before it above and below vein 7, angled outwards below vein 7 and at middle and inwards at discal fold; a crenulate brown line just before termen. Hind wing ochreous white, the terminal area broadly suffused with fuscous except at inner margin; cilia white. Underside white tinged with ochreous brown except on inner half of hind wing, a diffused fuscous subterminal shade.

Hab. PUNJAB, Kulu, Sultaupur (*G. Young*), 2 ♂ type. *Exp.* 50 millim.

7559. *Anua olista*. (Plate CCXV. fig. 1.)

Minucia olista, Swinh. A. M. N. H. (6) xii. p. 261 (1893).

♂. Head, thorax, and abdomen grey-brown; palpi, antennæ, and fore and mid tibiæ and tarsi dark brown. Fore wing grey-brown with a slight reddish tinge except on terminal area, sparsely irrorated with blackish; a blackish point on median nervure near base; antemedial line indistinct, brown slightly defined on outer side by whitish, oblique, sinuous; a dark point in middle of cell; reniform defined by dark brown, narrow, constricted at middle; a small postmedial black spot on costa with a series of striæ arising from it, oblique below vein 4; subterminal line grey defined on inner side by a series of small dentate black spots, the spot below vein 7 larger, angled outwards below vein 7 and at middle; an indistinct crenulate brown line just before termen. Hind wing greyish suffused with brown, the terminal area fuscous brown, narrowing to tornus; cilia grey-white. Underside grey suffused with brown, the terminal area darker.

♀. Fore wing with the spots on inner side of the subterminal line less prominent except towards costa.

Hab. JAPAN, Kiushiu, 1 ♂; COREA, Gensan (*Ito*), 1 ♂; CENTR. CHINA, Nanchuan, 1 ♀ type, Kiukiang (*Pratt*), 1 ♀; W. CHINA, Chang-yang (*Pratt*), 1 ♀; ASSAM, Khâsis (*Badgley*), 1 ♀. *Exp.* 48-50 millim.

7560. *Anua indistincta*.

Ophiodes indistincta, Moore, Lep. Atk. p. 169, pl. 6. f. 12 (1882); Hmps. n.

Moths Ind. ii. p. 497.

Ophiodes fervida, Butl. P. Z. S. 1883, p. 164.

♀. Head and thorax pale rufous; palpi grey-brown; frons with a dark bar; antennæ dark brown; legs grey-brown; abdomen grey suffused with brown. Fore wing ochreous suffused with rufous and sparsely irrorated with blackish, the terminal area purplish grey; a very indistinct pale obliquely curved antemedial line; a dark point in middle of cell; reniform small, brown,

oblique; a small postmedial black spot on costa followed by a series of slight striae, oblique below vein 4; subterminal line grey defined on inner side by deep red-brown and with some black before it below costa, angled outwards below vein 7 and at middle and inwards at discal fold; a yellowish line at base of cilia. Hind wing grey suffused with brown, the terminal half fuscous; cilia pale brown with a yellowish line at base. Underside grey, the terminal area suffused with fuscous.

Hab. PUNJAB, Kulu, Sultanpur (*G. Young*), 2 ♀, Simla (*Swinhoe*), 2 ♀ type. *Exp.* 44–54 millim.

7561. *Anua triphænoides*. (Plate CCXV. fig. 2.)

Ophiodes triphænoides, Wlk. xiv. 1358 (1858), ♂; Hmps. Moths Ind. ii. p. 505.

Ophiodes cuprea, Moore, P. Z. S. 1867, p. 74, ♀; Hmps. Moths Ind. ii. p. 497.

♂. Head and thorax ochreous, the head slightly tinged with rufous; palpi grey-brown, whitish in front; frons grey-brown; antennæ brown; fore and mid tibiae and the tarsi grey-brown; abdomen ochreous tinged with brown, the ventral surface ochreous white. Fore wing ochreous slightly irrorated with brown; traces of an oblique slightly sinuous pale antemedial line; a black point in middle of cell; reniform brownish defined by blackish and with some blackish in centre, narrow, constricted at middle; postmedial line with small black spot at costa, then indistinct, pale faintly defined on outer side by brown, excurved to vein 4, then oblique; subterminal line pale with black spots before it above and below vein 7, then defined on inner side by brown striae and on outer by slight brown spots, excurved below vein 7, then incurved and slightly sinuous; the terminal area suffused with red-brown; a series of dark points just before termen; a fine pale line at base of cilia. Hind wing whitish, the inner area suffused with ochreous; the terminal area fuscous, narrowing to tornus; cilia whitish, brown at tips at middle. Underside ochreous white, the terminal area of fore wing and of hind wing to vein 2 suffused with fuscous brown.

Ab. 1. Fore wing more suffused with purplish grey-brown and irrorated with blackish.

Ab. 2. Head, thorax, and fore wing whiter.

♀. Head, thorax, and fore wing darker; hind wing more suffused with brown.

Hab. FORMOSA, Takow (*Hobson*), 2 ♂, 2 ♀; HONGKONG (*J. J. Walker*), 1 ♀; CENTR. CHINA, Kiukiang (*Pratt*), 1 ♂, 2 ♀, Ship-y-Shán, 1 ♂; PUNJAB, 1 ♂, 1 ♀ type *cuprea*, Kulu, Sultanpur (*G. Young*), 1 ♂, 1 ♀, Simla (*Harford*), 1 ♂, 1 ♀, Dharmasála (*Hocking*), 4 ♂, 5 ♀, Wuzerabad (*Hearsey*), 1 ♂ type, Umballa, 1 ♀, Moghal Sarai (*Betton*), 1 ♂, Fatehpur (*Betton*), 1 ♀; SIKHIM

(*Dudgeon, Möller, Pilcher*), 3 ♂, 1 ♀; ASSAM (*Badgley*), 1 ♂, 1 ♀; BENGAL, Calcutta, 1 ♀; BOMBAY, 1 ♂, Kanara (*Ward*), 1 ♂; TRAVANCORE, Trivandrum (*Fergusson*), 1 ♂; BURMA, Bhámo (*Fea*), 1 ♂. *Exp.* 46–60 millim.

*7562. *Anua verecunda*. (Plate CCXV. fig. 3.)

Minucia verecunda, Holl, Ent. News Philad. v. p. 58 (1894).

♂. Head and thorax red-brown; antennæ with the shaft white towards base; abdomen grey-brown; pectus behind, the fringes of hair on legs and base of ventral surface of abdomen white tinged with rufous. Fore wing red-brown with a greyish tinge and slight blackish striation, the postmedial and terminal areas darker red-brown; an indistinct brown antemedial line, oblique from costa to submedian fold where it is angled, then incurved; a black point in middle of cell; a narrow brown discoidal lunule defined by blackish; postmedial line brown, slightly excurved below costa, then oblique, defining the dark area; subterminal line greyish defined on inner side by red-brown and on outer by blackish, angled outwards below vein 6, then incurved to below vein 3; a series of black and white points just before termen. Hind wing whitish suffused with red-brown, the terminal area broadly fuscous leaving a pale patch at apex; the underside thickly clothed with whitish pile tinged with rufous, a large diffused fuscous apical patch.

Hab. GABOON, Ogové R., type † ♂ in Coll. Holland. *Exp.* 56 millim.

7563. *Anua selenaris*.

Ophiodes selenaris, Guen. Noct. iii. p. 232 (1852).

Ophiusa obherens, Wlk. xv. 1830 (1858).

Pseudophia welwitschi, Feld. Reis. Nov. pl. 115. f. 2 (1874).

♂. Head and thorax pale ochreous yellow slightly tinged with rufous; palpi and frons grey-brown; antennæ brown, whitish towards base; pectus and legs ochreous white, the fore and mid tibiae and the tarsi grey-brown; abdomen ochreous white dorsally suffused with brown. Fore wing ochreous yellow tinged with rufous, the terminal area violaceous white irrorated with blackish; antemedial line indistinct, pale, oblique to submedian fold, then inwardly oblique; a black point in middle of cell; reniform small, brownish, constricted at middle; postmedial line indistinct, brown defined on inner side by whitish, excurved to vein 5, then oblique; subterminal line pale defined on outer side by black striæ, incurved between veins 5 and 3, then excurved; a series of black points before termen, the termen and cilia pale rufous. Hind wing grey-white tinged with brown, the terminal half suffused with fuscous; cilia white. Underside whitish tinged with ochreous brown, the terminal areas suffused with fuscous; both wings with faint discoidal lunule.

Ab. 1. Thorax and fore wing redder brown; hind wing with the basal half whiter.

Ab. 2. Fore wing with the antemedial line angled outwards in submedian fold to the postmedial line.

Ab. 3. Similar in colouring to the female.

♀. Thorax suffused with chocolate-brown; fore wing purple-grey suffused with chocolate-brown especially before the subterminal line and more strongly irrorated with black.

Hab. S. NIGERIA, Old Calabar (*Cockburn*), 1 ♀; MASHONALAND, Salisbury (*Marshall*), 1 ♀; TRANSVAAL, Lydenburg, 1 ♂, White R. (*Cooke*), 1 ♂; ORANGE R. COLONY, Bloemfontein (*Eckersley*), 1 ♀; NATAL, Durban, 1 ♂; BASUTOLAND, Maseru (*Crawshaw*), 1 ♀; CAPE COLONY (*Sir A. Smith*), 1 ♀ type *obhærens*, Transkei (*Miss F. Barrett*), 2 ♂. *Exp.* 44-46 millim.

7564. *Anua dilecta*. (Pl. CCXV. fig. 4.)

Ophiusa dilecta, Wlk. xxxiii. 967 (1865).

Head and thorax ochreous suffused with rufous, the dorsum of thorax and tips of patagia with some black-brown; palpi red-brown, fringed with ochreous hair in front; frons and antennæ red-brown; fore and mid tibiæ and the tarsi grey-brown; abdomen ochreous white, the ventral surface tinged with rufous. Fore wing ochreous suffused with rufous and striated with blackish; antemedial line indistinct, red-brown, oblique from costa to submedian fold, then incurved; a black point in middle of cell; reniform defined by blackish, open above and below, small, constricted at middle; postmedial line red-brown, oblique to below vein 7, then incurved, excurved at middle and above inner margin where it is approximated to the antemedial line, a dark streak beyond it on inner margin; subterminal line greyish defined on each side by blackish and with red-brown suffusion before it, excurved below vein 7 and slightly below vein 4; a series of dark points just before termen; cilia brown at tips. Hind wing ochreous white with a diffused fuscous brown subterminal patch between vein 7 and submedian fold; a slight waved dark terminal line between veins 4 and 2. Underside ochreous white; fore wing with the costal and terminal areas tinged with brown and with a fuscous subterminal shade; hind wing with the terminal area tinged with brown from apex to vein 2.

Hab. SIERRA LEONE (*Foxcroft*), 1 ♀ type; S. NIGERIA, Old Calabar (*Cockburn*, *Sampson*), 1 ♂, 1 ♀; NATAL, Durban (*Gueinzius*), 1 ♀. *Exp.* 46-50 millim.

7565. *Anua finifascia*. (Plate CCXV. fig. 5.)

Nephelodes finifascia, Wlk. xv. 1676 (1858).

Anua amplior, Wlk. xv. 1789 (1858).

Pseudophia lilaceofasciata, Pag. Voeltz. Reise in Ost-Afrika, ii. p. 115, pl. 6. f. 21 (1907).

♂. Head and thorax deep chocolate red-brown; antennæ with

the shaft whitish on inner side towards base; tibiæ and tarsi grey-brown, the fore tarsi white in front; abdomen ochreous white tinged with brown, the anal tuft and ventral surface rufous. Fore wing rufous suffused with red-brown and slightly striated with blackish, the terminal area tinged with purple-grey; a subbasal red-brown striga from costa; antemedial line red-brown, very oblique to submedian fold where it is acutely angled outwards, angled inwards at vein 1; a black point in middle of cell; reniform defined by dark brown, narrow, constricted at middle; postmedial line red-brown, oblique to below vein 7, then incurved, excurved at middle and above inner margin, angled inwards at submedian fold where it is connected by two slight streaks with the antemedial line to which it is also approximated at inner margin, a dark streak beyond it on inner margin; subterminal line purplish grey defined on each side by blackish and with deep red-brown suffusion before it, excurved below vein 7 and slightly below vein 4; a crenulate brown line just before termen; cilia dark brown. Hind wing ochreous white, with a diffused fuscous brown patch on terminal area between veins 7 and 1 and a waved dark terminal line. Underside ochreous white; fore wing with the costal and terminal areas suffused with brown, a slight discoidal lunule and fuscous subterminal shade; hind wing with the costal area irrorated with brown except towards base, the terminal area tinged with brown from apex to vein 2.

♀. Thorax and fore wing with a slight ochreous tinge.

Hab. TRANSVAAL, White R. (Cooke), 1 ♂; NATAL, Durban (Gueinzus, Marley), 3 ♀ type and type *amplior*; COMORO Is. *Exp.* 50-54 millim.

7566. *Anua violascens*. (Plate CCXV. fig. 6.)

Ophiura violascens, Hmps. Ann. S. Afr. Mus. ii. p. 446 (1902).

♀. Head, tegulæ, and patagia lilacine grey irrorated with a few brown scales; abdomen pale brownish, the ventral surface white irrorated with dark brown. Fore wing lilacine grey irrorated with black and suffused with rufous towards the subterminal line; an oblique waved pale rufous antemedial line defined by white on outer side; orbicular and reniform defined by rufous, the former a minute annulus, the latter constricted at middle; postmedial line rufous defined by white on inner side, excurved below costa and at middle, angled inwards in discal and submedian folds; subterminal line whitish defined by dark rufous on inner side and brownish on outer, incurved below costa, angled outwards at vein 7, then incurved and ending at tornus; the terminal area greyer with crenulate rufous line just before termen; cilia blackish except at apex and tornus. Hind wing ochreous brown, the terminal area suffused with fuscous; cilia white, brown at middle; the underside white irrorated with brown, the terminal half suffused with brown.

Hab. NATAL, Durban (Leigh), 1 ♀ type. *Exp.* 46 millim.

7567. *Anua tumidilinea*. (Plate CCXV. fig. 7.)

Ophiusa tumidilinea, Wlk. xiv. 1433 (1858); Hmps. Moths Ind. ii. p. 498.

♀. Head and thorax purplish brown slightly mixed with grey; palpi grey-brown, white in front; frons with brown bars above; pectus and legs whitish tinged with brown; abdomen grey-brown, the ventral surface whitish tinged with brown. Fore wing purple-brown irrorated with dark brown, the area before the subterminal line suffused with chocolate-brown, the terminal area greyer; sub-basal line slight, curved, from costa to submedian fold; antemedial line brown, defined on outer side by grey, oblique; a blackish point in middle of cell; reniform defined by dark brown, narrow and constricted at middle; postmedial line brown defined on inner side by grey, excurved from costa to vein 4, then incurved, bent inwards to inner margin; three white points on postmedial part of costa; subterminal line grey defined on inner side by chocolate-brown suffusion, excurved below vein 7, then bent inwards and oblique towards tornus, some fuscous irroration beyond it between veins 5 and 1½ a crenulate brown line just before termen. Hind wing with the basal half pale brown, the terminal half fuscous brown; the termen greyish with a waved brown line between veins 4 and 2; cilia white, brown between veins 4 and 2. Underside whitish, the terminal areas fuscous brown, both wings with brownish discoidal lunules.

Hab. PUNJAB (*James*), 1 ♀ type. *Exp.* 46 millim.

7568. *Anua recurvata*, n. sp. (Plate CCXV. fig. 8.)

♂. Head and thorax bright rufous; palpi and frons brown, the latter with white line above; antennæ brown, white in front towards base; fore and mid tibiæ brown, the tarsi brown with slight pale rings; abdomen grey-brown. Fore wing rufous, the costal edge pale, the terminal area purplish grey suffused with brown at termen; antemedial line pale, oblique, sinuous; orbicular blackish, minute, round; reniform brownish defined by brown, constricted at middle; postmedial line pale slightly defined on outer side by brown, strongly excurved below costa, excurved at middle and to inner margin, incurved at discal and submedian folds; subterminal line pale defined on inner side by deep chocolate-brown suffusion, excurved below vein 7, then bent inwards and slightly incurved to tornus; a crenulate brown line just before termen with white points beyond it; cilia with a fine white line at base. Hind wing grey-brown; a waved brown terminal line defined on inner side by grey-white; cilia whitish. Underside of both wings uniform silky grey-brown.

Hab. GOLD COAST, 1 ♂ type. *Exp.* 56 millim.

*7569. *Anua hopei*. (Plate CCXV. fig. 18.)*Ophiusa hopei*, Boisd. Faun. Ent. Madag. p. 101, pl. 15. f. 3 (1833).

♂. Head and thorax ochreous tinged with rufous; palpi grey-brown, white in front; pectus and legs ochreous white, the tibiae and tarsi tinged with brown; abdomen pale grey-brown tinged with rufous, the ventral surface ochreous white. Fore wing ochreous tinged with rufous and slightly irrorated with blackish, the postmedial area rather redder, the terminal area grey-white irrorated with brown; traces of an oblique antemedial line joining the postmedial line above inner margin; a small brownish discoidal lunule; postmedial line slight, brown, excurved below costa, then oblique and sinuous; subterminal line slight, whitish defined on inner side by rather diffused red-brown, excurved below vein 7, then strongly incurved and ending at tornus; a faint waved brownish line just before termen. Hind wing whitish suffused with red-brown, the terminal area suffused with fuscous brown, broadly at costa and narrowing to tornus; cilia white, brown at middle. Underside of both wings white with the terminal area fuscous brown except towards tornus; fore wing with dark discoidal lunule.

Hab. MADAGASCAR in Coll. Mabillo. *Exp.* 54 millim.7570. *Anua salita*. (Plate CCXV. fig. 9.)*Ophiusa salita*, Dist. A. M. N. H. (7) i. p. 228 (1898).

♂. Head and thorax purple-grey mixed with red-brown; frons whitish with brown band above; antennae brown; tegulae with a slight red-brown line near tips; pectus and legs ochreous white, the tarsi blackish ringed with white; abdomen ochreous white dorsally tinged with brown except at extremity. Fore wing to the subterminal line purple-grey suffused with bright red-brown, striated with white and irrorated sparsely with black, the terminal area purple-grey; subbasal line red-brown, from costa to submedian fold; antemedial line red-brown defined on outer side by grey, slightly angled outwards below costa, then very oblique; orbicular minute, defined by whitish; reniform elliptical, defined by whitish and its centre slightly by black; postmedial line red-brown slightly defined on inner side by whitish, excurved to vein 4, then incurved and slightly angled inwards at submedian fold; subterminal line grey defined on outer side by black striae towards costa, then by dentate black marks on the veins streaked with grey, excurved below vein 7, waved between veins 5 and 3 and ending at tornus; a series of minute black points just before termen; cilia tinged with red-brown. Hind wing ochreous tinged with brown, the terminal area suffused with fuscous narrowing to tornus; a fine dark terminal line; cilia white tinged with brown at middle.

Underside white with faint brown postmedial line, the terminal area suffused with brown; fore wing with slight discoidal lunule.

Hab. TRANSVAAL, Piet Retief (*Crawshaw*), 1 ♂, Johannesburg (*Ross, Cregoe*), 3 ♂, 1 ♀ type, Pretoria (*Zutrencka*), 1 ♀. *Exp.* 40–48 millim.

7571. *Anua melaconisia*. (Plate CCXV. fig. 10.)

Ophiusa melaconisia, Hmps. Ann. S. Afr. Mus. iii. p. 431 (1905).

♂. Head and thorax clothed with grey and brown scales with some large black scales mixed; abdomen grey irrorated with brown. Fore wing grey very thickly and finely striated with brown and irrorated with some large black-tipped white scales; the veins white; subbasal line white, oblique, from costa to submedian fold; antemedial line white defined by brown on inner side, oblique, slightly excurved below costa; orbicular and reniform elliptical, black defined by white; postmedial line white defined by brown on outer side, excurved from just below costa to vein 4, then incurved and slightly excurved above inner margin; subterminal line whitish defined on each side by red-brown, some black marks on its inner side below costa, slightly excurved below vein 7, then nearly straight; a fine crenulate red-brown line just before termen; a fine whitish line at base of cilia. Hind wing ochreous suffused with brown, the terminal area suffused with fuscous; a dark terminal line; cilia pale. Underside whitish, the terminal areas suffused with fuscous; fore wing with the dark orbicular and reniform showing.

Hab. MASHONALAND, Salisbury (*Dobbie*), 1 ♂ type. *Exp.* 46 millim.

7572. *Anua trapezium*. (Plate CCXV. fig. 11.)

Ophiodes trapezium, Guen. Noct. iii. p. 231 (1852); Hmps. Moths Ind. ii. p. 504.

Ophisma cognata, Wlk. xxxiii. 958 (1865).

Ophiusa kebea, Beth.-Baker, Nov. Zool. xiii. p. 255 (1906).

Head and thorax ochreous suffused with rufous; palpi brown, whitish in front; frons rufous; antennæ brown, the basal joint white in front; tibiæ and tarsi grey-brown; abdomen ochreous tinged with rufous. Fore wing greenish ochreous tinged with rufous and slightly irrorated with black, the terminal area red-brown; antemedial line fine, red-brown, oblique; a dark point in middle of cell; reniform rufous defined by brown and with brown striga in centre, constricted at middle; postmedial line fine, red-brown, excurved to vein 4, then oblique to inner margin near the antemedial line; a rufous streak on inner margin; subterminal line double, brown, oblique; a faint waved brown line just before termen. Hind wing ochreous tinged with brown; a broad fuscous subterminal band; a waved brown line just before termen; cilia

ochreous white, tinged with red-brown at middle. Underside ochreous tinged with rufous; fore wing with fuscous subterminal band from vein 6 to submedian fold.

Ab. 1. *cognata*. Fore wing ochreous tinged with rufous, not greenish.

Hab. HONG KONG (*J. J. Walker*), 1 ♂; ASSAM, Silhet (*Stainsforth, James*), 2 ♂, 1 ♀; MADRAS, Nilgiris; TRAVANCORE, Trivandrum (*Ferguson*), 1 ♂; CEYLON; NICOBARS (*Rogers*), 1 ♂; SINGAPORE (*Ridley*), 4 ♂; MYSOL; BR. N. GUINEA, Mt. Kebea (*Pratt*), type ♀ *kebea* in Coll. Bethune-Baker. *Exp.* 54-66 millim.

7573. *Anua circumferens*.

Ophisma circumferens, Wlk. xxxiii. 956 (1865); Hmps. Moths Ind. iii. p. 106.

Ophiodes adusta, Moore, Lep. Atk. p. 169, pl. 6. f. 11 (1882); Hmps. Moths Ind. ii. p. 497.

Minucia prunicolor, Moore, Lep. Ceyl. iii. p. 160, pl. 167. f. 3 (1884).

♀. Head and thorax red-brown; palpi whitish in front; tibiae and tarsi grey-brown; abdomen brown, the anal tuft and ventral surface ochreous tinged with rufous. Fore wing purplish red-brown slightly irrorated with black; antemedial line fine, brown, oblique; a dark point in middle of cell; reniform defined by brown and with blackish striga in centre, constricted at middle; post-medial line fine, brown, excurved to vein 4, then oblique to inner margin near antemedial line; a dark brown streak on inner margin; subterminal line double, dark brown filled in with greyish and with deep red-brown suffusion before it, oblique; the terminal area purplish grey with an indistinct crenulate brown line just before termen; cilia dark brown. Hind wing ochreous suffused with brown; a broad fuscous subterminal band; a fine waved brown terminal line. Underside ochreous suffused with brown; fore wing with fuscous subterminal band from vein 5 to submedian fold.

Hab. SIKHIM (*Möller*), 1 ♀; ASSAM; MADRAS, Nilgiris (*Hampson*), 1 ♀; CEYLON, 2 ♀ type *prunicolor*; SINGAPORE (*Ridley*), 3 ♀. *Exp.* 46-62 millim.

C. Hind wing of male on underside entirely clothed with silky androconia except the costal area; the fore femora with thick fringe of scales and hair above, the hind tibiae fringed with long hair above.

7574. *Anua cancellata*.

Toxocampa cancellata, Saalm. Lep. Madag. p. 414, f. 186 (1891).

♂. Head and thorax grey tinged with red-brown and irrorated with black; palpi dark brown, white in front except the 3rd joint which is white at tip; frons with dark brown band; pectus and legs brownish white, the tarsi fuscous ringed with white; abdomen whitish dorsally suffused with brown, ventrally irrorated with

brown. Fore wing pale grey tinged with rufous and irrorated with large black scales, the terminal area slightly irrorated, the veins streaked with whitish; a black spot at base of cell; antemedial line red-brown defined on outer side by whitish, slightly bent outwards below costa, then oblique, at inner margin curved round to join the postmedial line; orbicular and reniform black with whitish annuli and whitish striæ in centres, the former with its outer part intersected by a whitish streak in discal fold, the latter intersected by the whitish streak in discal fold and its outer part by streaks on the veins; postmedial line red-brown defined on inner side by whitish, excurved to vein 4, then incurved, and curved round at inner margin to join the antemedial line; subterminal line whitish defined on each side by red-brown, some

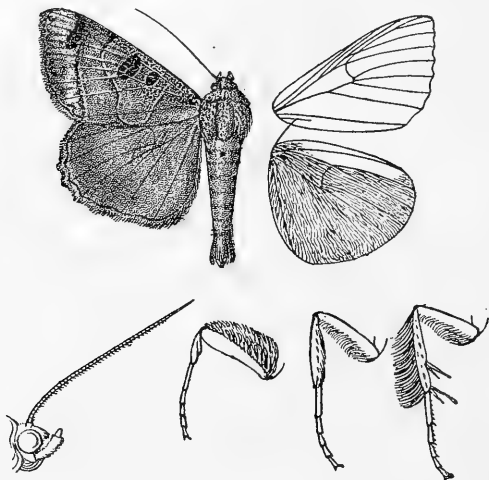


Fig. 103.—*Anua cancellata*, ♂. 1.

black scales on its outer edge and three black spots on its inner side from below costa to discal fold where it is slightly bent inwards; a crenulate red-brown line just before termen and fine pale line at base of cilia. Hind wing greyish tinged with red-brown, the termen greyer and irrorated with dark brown to vein 2; a dark subterminal shade from costa to vein 2 and a fine dark brown terminal line except towards tornus. Underside of fore wing whitish, an oblique fuscous discoidal bar, the terminal area fuscous except towards tornus; hind wing clothed with silky ochreous hair except the costal area which is irrorated with brown.

♀. Fore wing rather browner, the ante- and postmedial lines not confluent at inner margin.

Hab. UGANDA, Kumi (*Neave*), 1 ♂; MADAGASCAR, Nossi-Bé. *Exp.* 56 millim.

- D. Hind wing of male on underside entirely clothed with ochreous androconia; the mid and hind femora and the hind tibiae on inner side fringed with hair.
- a. (*Stenopsis*.) Hind wing of male with the termen produced into a rounded lobe at middle.
- a¹. Hind wing with the termen rather broadly white from apex to below vein 5 *conspicienda*.
- b¹. Hind wing with the termen not broadly white on apical half.
- a². Head and thorax deep rufous *reducta*.
- b². Head and thorax grey-brown.
- a³. Fore wing of male nearly uniformly suffused with leaden grey except on terminal area *fumida*.
- b³. Fore wing more variegated with grey-brown, in male with some leaden grey suffusion *producta*.
- c³. Fore wing pale grey-brown without leaden grey suffusion.
- a⁴. Fore wing without black subapical spot *xylochroa*.
- b⁴. Fore wing with black subapical spot *gonoptera*.
- d³. Fore wing pale olive-yellow; hind wing of male with the termen less produced at middle *tumiditermina*.

7575. *Anua conspicienda*. (Plate CCXV. fig. 12.)

Achæa conspicienda, Wlk. xiv. 1392 (1858).

Head and thorax reddish brown; antennæ with the shaft white in front towards base; palpi, frons, and legs darker brown, the spurs and tarsi ringed with whitish; abdomen pale red-brown, the ventral surface whitish towards base. Fore wing pale reddish brown with a faint greyish tinge; a minute fuscous and whitish tuft below base of cell; antemedial line indistinct, brown, oblique and sinuous to below base of vein 2, then inwardly oblique; a black point in middle of cell, and grey-brown discoidal lunule with minute white point at upper extremity and two at lower; post-medial line indistinct, brown defined on outer side by greyish brown, excurved below costa and at middle, incurved at discal fold and oblique below vein 4; subterminal line grey-white with some black before it below costa, angled outwards above vein 6 where the black forms a triangular spot, then waved and with slight black marks on its inner side at middle, at submedian fold forming a grey spot; a series of brown and whitish points before termen. Hind wing grey-brown with a fuscous postmedial shade, broad from below costa to vein 2, then narrowing to tornus; the terminal area and cilia white from apex to below vein 5. Underside of fore wing brownish white to beyond middle, the terminal area grey-brown; hind wing clothed with brownish grey androconia, the apical area slightly darker; in female brownish white with the terminal area grey-brown.

Ab. 1. Fore wing rather darker and greyer.

Hab. W. AFRICA, 1 ♀ type; S. NIGERIA, Old Calabar (*Cockburn, Crompton*), 2 ♂. *Exp.* 64-70 millim.

7576. *Anua reducta*. (Plate CCXV. fig. 13.)

Stenopsis reducta, Mab. C. R. Ent. Soc. Belg. xxiii. p. cviii (1880).

♂. Head and thorax deep chocolate red-brown; antennæ fuscous, the shaft white above towards base; palpi black-brown irrorated with grey, the basal joint ochreous in front; pectus and femora rufous, the tibiæ and tarsi black-brown irrorated with grey; abdomen grey-brown, the ventral surface reddish ochreous towards base. Fore wing dark purplish brown with a leaden grey gloss, the outer part of medial area and the terminal area with a reddish tinge, the costal area slightly irrorated with white towards base; antemedial line very indistinct, dark, sinuous to median nervure, then strongly excurved and slightly angled inwards at vein 1; reniform faintly defined by dark brown and with a white point at its lower extremity; a narrow postmedial dark band, excurved below costa, incurved at discal fold, oblique below vein 4 and slightly excurved above vein 1, a very indistinct waved subterminal line, excurved below vein 7 with a small black spot defined by whitish on its inner side, with black points below veins 4 and 3 and a grey spot on its outer side at submedian fold; a slight crenulate dark line before termen with minute whitish points on its outer side on apical half. Hind wing grey-brown, the terminal half fuscous; the termen narrowly and cilia white to below vein 4, the lobe grey with a slight waved dark line before termen; the cilia tinged with rufous below the white part. Underside of fore wing grey-brown, the costa and terminal area broadly fuscous; hind wing ochreous with the terminal area grey-brown.

♀. Head, thorax, and fore wing bright red-brown, the last with the markings much more distinct; underside of hind wing ochreous white, the terminal area tinged with grey-brown except towards tornus.

Ab. 1. ♂. Similar to the female.

Ab. 2. ♂. Paler than the female; fore wing with the ante- and postmedial lines indistinct.

Hab. CENTR. MADAGASCAR (*Pratt*), 1 ♂, 1 ♀. *Exp.* 70 millim. Type † in Coll. Mabille.

7577. *Anua fumida*, n. sp. (Plate CCXV. fig. 14.)

♂. Head and thorax ochreous brown suffused with grey-brown; pectus and femora pale fulvous yellow, the tibiæ and tarsi grey-brown; abdomen pale grey-brown, the ventral surface ochreous. Fore wing grey-brown with a silvery leaden gloss, the terminal area striated with ochreous; a faint dark subbasal line from costa to submedian fold; antemedial line indistinct, dark, oblique and sinuous to below vein 2, then inwardly oblique; reniform faintly defined by brown and with slight pale points at its upper and lower extremities; postmedial line indistinct, brown, waved, excurved below costa and

at middle, incurved at discal fold and below vein 4; subterminal line represented by red-brown spots below veins 8 and 7, the latter angled outwards, then by an incurved series of black points in the interspaces to above vein 2 and a slight line from vein 2 to inner margin; a terminal series of slight black points and an ochreous line at base of cilia. Hind wing grey-brown, the terminal area with a fuscous shade, the lobe greyer; cilia creamy white to below vein 5, then pale red-brown. Underside of fore wing grey-brown, the cell and area just below and beyond it whitish with a diffused grey-brown discoidal lunule; hind wing clothed with pale grey-brown androconia, the apical area with a slight fuscous tinge.

Hab. NATAL, Durban (*Queckett*), 1 ♂ type. *Exp.* 6½ millim.

7578. *Anua producta*.

Minucia producta, Holl. *Psyche*, vii. p. 70, pl. iii. f. 2 (1894).

Head and thorax pale brown suffused with fuscous; palpi, sides of frons, and antennæ blackish; pectus and femora pale fulvous, the tibiæ and tarsi blackish brown, the latter ringed with whitish;

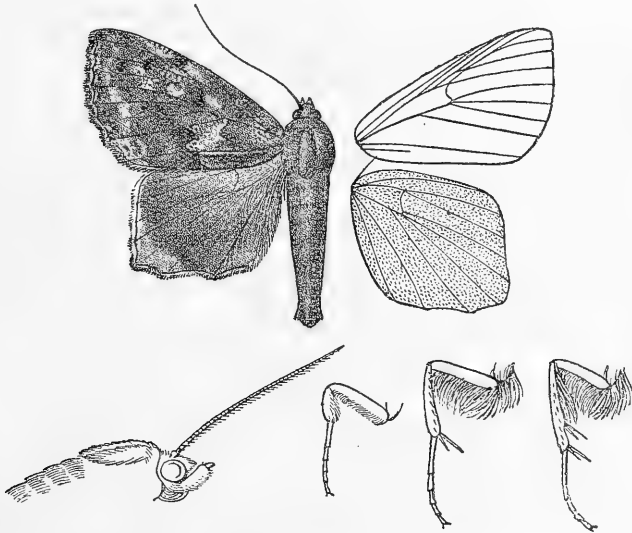


Fig. 104.—*Anua producta*, ♂. 1.

abdomen grey-brown tinged with fuscous. Fore wing ochreous brown suffused and irrorated with fuscous and with a silvery leaden gloss; antemedial line indistinct, dark, waved, oblique from costa to submedian fold, then incurved; a faint dark point at middle of

cell; reniform with faint dark outline, a minute white point at upper extremity, two at lower, and one on inner side; postmedial line indistinct, dark and with some dark suffusion beyond it, excurved below costa and at middle, incurved at discal fold, oblique and waved below vein 4; subterminal line very indistinct, grey-white, waved, oblique towards costa, excurved and with slight brown mark before it above vein 6, then incurved and with slight dark points before it at middle, a sinuous series of faint ochreous marks beyond it; a series of black and white points before termen; an ochreous line at base of cilia. Hind wing grey-brown suffused with fuscous especially on terminal area, the termen greyer at the lobe at middle; the termen and cilia white from apex to below vein 5. Underside of fore wing pale grey-brown with some whitish suffusion beyond the cell; hind wing clothed with brownish grey androconia and with a faint rufous tinge on basal area.

♀. Fore wing more variegated with ochreous brown; underside of both wings with the basal half brownish white, the terminal half fuscous brown.

Hab. SIERRA LEONE (*Clements*), 1 ♂, 2 ♀; GOLD COAST, Obuassi (*Bergman*), 1 ♀; S. NIGERIA, Sapele (*Sampson*), 1 ♂, 1 ♀. *Exp.* 60-66 millim.

***7579. *Anua xylochroa*. (Plate CCXV. fig. 15.)**

Anua xylochroa, Druce, A. M. N. H. (8) ix. p. 552 (1912).

♂. Head and thorax greyish ochreous suffused with brown; palpi and sides of frons browner; abdomen grey suffused with brown, the ventral surface ochreous white. Fore wing greyish ochreous irrorated with brown, the basal area suffused with grey-brown and irrorated with some whitish scales; a diffused sinuous grey-brown antemedial band, oblique to median nervure; a slight blackish spot in middle of cell and diffused brown discoidal spot connected by some brown on median nervure with the antemedial band; a sinuous grey-brown postmedial band, bent outwards below costa, incurved at discal fold and below vein 4, some slight pale points beyond it on costa; an oblique grey-brown subterminal band with sinuous edges from apex to inner margin, which is suffused with grey-brown to the antemedial band; traces of a waved dark subterminal line on the band, excurved below costa and incurved at middle and with slight black points in the interspaces between veins 4 and 1; traces of a crenulate line just before termen with slight whitish spots beyond it at the interspaces. Hind wing grey-brown with a slight reddish tinge; a faint diffused fuscous subterminal shade; the lobe at middle of termen greyer; the termen and cilia white to below vein 4. Underside of both wings pale grey-brown; fore wing with the cell and discal area whitish.

♀. Fore wing much more uniform grey-brown, the costal area and terminal area except towards tornus with a faint reddish tinge, the ante- and postmedial lines represented by blue-grey scales, white points at angles of cell, the subterminal band absent and the subterminal line defined by blue-grey spots on outer side; underside of both wings grey-brown with the basal half whitish.

Hab. Congo, Upper Kasai Distr. (*Landbeck*), type † ♂, ♀ in Coll. Druce. *Exp.* 72 millim.

7580. *Anua gonoptera*.

Ophiusa gonoptera, Hmps. P. Z. S. 1910, p. 419, pl. xxxvii. f. 13.

♂. Head and thorax pale olive-brown; palpi blackish irrorated with grey; antennæ, tibiæ, and tarsi fuscous; abdomen pale brown. Fore wing grey-brown suffused with brown and irrorated with black; antemedial line very indistinct, blackish, oblique, strongly angled outwards in submedian fold; a black point in middle of cell; reniform indistinct, brown, defined by white points above on outer side and below on inner and outer sides; postmedial line very indistinct, waved, excurved below costa, then oblique, a paler patch before it in submedian interspace; subterminal line represented by a grey striga from costa, a dentate black mark defined on outer side by grey below apex, then by an incurved series of slight black points and by a faint olive-yellow spot above tornus, an oblique dark striga beyond it from apex; traces of a series of black points before termen and of some black points on termen. Hind wing grey-brown with broad diffused fuscous subterminal shade; cilia whitish from below apex to the lobe. Underside brownish grey; fore wing with slight discoidal lunule, the terminal area broadly suffused with fuscous.

Hab. N.E. RHODESIA, Luangwa R. (*Neave*), 1 ♂ type. *Exp.* 58 millim.

7581. *Anua tumiditermina*.

Ophiusa tumiditermina, Hmps. P. Z. S. 1910, p. 419, pl. xxxvii. f. 22.

♂. Head and thorax pale olive-yellow; palpi, tibiæ and tarsi fuscous irrorated with grey; abdomen pale brownish grey. Fore wing pale olive-yellow slightly irrorated with dark brown; antemedial line brown, indistinct, obsolete towards costa, angled inwards on median nervure and outwards in submedian fold; a black point in middle of cell; reniform pale red-brown defined by some black scales and with white points on its outer side above and on inner and outer sides below; postmedial line brown, obsolete at costa, then oblique, sinuous; subterminal line represented by two black-brown lunules below costa defined on outer side by grey and brown, then by an incurved series of grey and brown points on the veins and by two grey spots defined by brown

above tornus, the lower one large; a crenulate brown line just before termen with grey points at the veins; cilia grey, brown at base and tips. Hind wing pale reddish brown with broad diffused fuscous subterminal shade; some grey on termen at the lobe; cilia white, fuscous at the lobe. Underside brownish white; fore wing with broad fuscous subterminal shade not reaching inner margin; hind wing with fuscous apical patch.

♀. Head, thorax, and fore wing pale red-brown; underside of hind wing with faint diffused fuscous subterminal shade.

Hab. N.E. RHODESIA, Tanganyika Plateau (*Neave*), 1 ♂ type, Chambezi Valley (*Neave*), 1 ♀, Lake Bangweolo (*Neave*), 1 ♀, Mausya R., 1 ♀. *Exp.* 58 millim.

b. Hind wing of male with termen not produced at middle.

a¹. Fore wing with the postmedial line excurved below costa and at middle and incurved at discal fold and below vein 4 *david*.

b¹. Fore wing with the postmedial line strongly excurved below costa, then oblique *despecta*.

7582. *Anua david*.

Minucia david, Holl. *Psyche*, vii. p. 70 (1894).

Head and thorax bright red-brown; palpi, pectus, legs, and

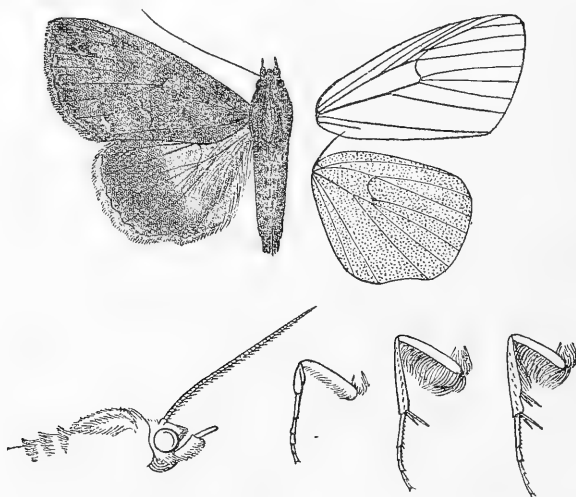


Fig. 105.—*Anua david*, ♂. †.

abdomen grey-brown. Fore wing bright red-brown irrorated with blackish; antemedial line brown with slight brown suffusion before

it on inner half, sinuous, oblique to submedian fold, then inwardly oblique; a minute black point in middle of cell and diffused brown discoidal spot; postmedial line slight, dark, faintly defined on outer side by brown suffusion, excurved below costa and at middle, incurved at discal fold and below vein 4; subterminal line formed by black striæ defined on outer side by slight grey spots except towards costa, excurved to discal fold, then incurved to vein 3; a series of slight dark points just before termen. Hind wing dull reddish brown, the terminal half slightly darker; cilia brownish white. Underside pale greyish, the terminal areas broadly suffused with brown, in male the whole hind wing clothed with bright ochreous androconia, the costa narrowly brown.

Ab. 1. Fore wing darker especially the postmedial area, the subterminal line with prominent black marks on its inner edge above and below vein 6 and some greenish grey on its outer edge at submedian fold.

Hab. W. AFRICA, 1 ♂; S. NIGERIA, Ilesha (*Humfrey*), 1 ♀, Afikpo (*Simpson*), 1 ♀; S. NIGERIA, Lokoja (*Dudgeon*), 1 ♀; GABOON, Ogové R., 1 ♀ co-type; N.E. RHODESIA, Kulungwisi Distr. (*Neave*), 1 ♀. *Exp.* 60-68 millim.

7583. *Anua despecta*. (Plate CCXV. fig. 16.)

Minucia despecta, Holl. *Psyche*, vii. p. 70, pl. iii. f. 1 (1894).

♀. Head and thorax red-brown; pectus whitish tinged with red-brown; palpi, legs, and abdomen grey-brown, the last ventrally whitish. Fore wing red-brown with slight dark irroration; sub-basal line brown, oblique, from costa to submedian fold; antemedial line dark brown, inwardly oblique, straight; reniform defined on inner side by a straight brown line, very faintly defined and excised on outer side; postmedial line dark brown, obtusely angled outwards below costa, then oblique; subterminal line slight, brown with small black spot on it above vein 7 and conical spot defined on outer side by whitish below vein 7, incurved and with slight dark points on it between veins 5 and 2; a crenulate blackish line just before termen. Hind wing fuscous brown, the terminal area darker; the termen and cilia white from apex to vein 4; a slight waved dark line before termen; cilia red-brown from vein 4 to tornus. Underside of fore wing grey-white, the inner and terminal areas fuscous; hind wing grey-white with a broad fuscous sub-terminal shade.

Hab. S. NIGERIA, Sapele (*Sampson*), 1 ♀; GABOON, Ogové R. *Exp.* 54 millim.

- E. Hind wing of male on underside normal; mid tibiæ dilated with a groove containing a fringe of large scales, the mid tarsi dilated towards extremity.

7584. *Anua nocturnia*.

Ophiusa nocturnia, Hmps. Ann. S. Afr. Mus. ii. p. 338 (1902).

Head and thorax dull reddish brown; palpi, pectus, legs, and abdomen dark greyish brown. Fore wing red-brown, the terminal area greyish brown; subbasal line brown faintly defined on outer side by ochreous, waved, from costa to submedian fold; antemedial line indistinct, brown faintly defined by whitish scales, slightly angled outwards below costa and inwards on median nervure, then oblique, sinuous; a minute black point in middle of cell and small pale discoidal lunule faintly defined by blackish; an indistinct

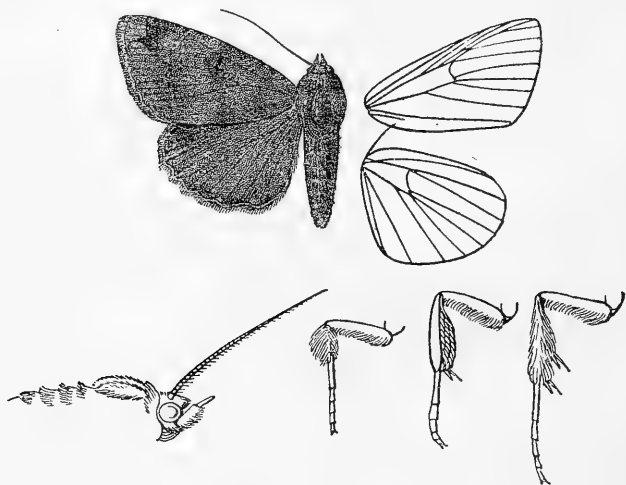


Fig. 106.—*Anua nocturnia*, ♂. 1.

oblique minutely waved dark medial line faintly defined by whitish scales from costa to below end of cell, where it is met by a similar line from costa just beyond the cell, excurved at discal fold; postmedial line indistinct, dark, dentate, faintly defined by whitish scales on costal half, excurved to vein 4, then oblique, some whitish points beyond it on costa; a conical rufous patch on costal area before the subterminal line which is only defined by the contrast between the red and grey-brown areas, excurved below vein 7 and at middle; a series of blackish points just before termen. Hind wing grey-brown, the cilia brownish white; the underside paler with curved postmedial line and indistinct diffused subterminal line.

Ab. 1. Fore wing ochreous brown to the subterminal line, except the patch enclosed by the medial lines and the patch on costal area before the subterminal line.

Ab. 2. Fore wing with the lines defined by ochreous brown, the postmedial costal patch ochreous.

Hab. TRANSVAAL (*Marshall*), 3 ♀; CAPE COLONY, Transkei (*Miss F. Barrett*), 2 ♂, Annshaw (*Miss F. Barrett*), 1 ♂ type. *Exp.* 45-56 millim.

Genus **HYPANUA**, nov.

Type, *H. xyliua*.

Proboscis fully developed; palpi upturned, the 2nd joint reaching to vertex of head and moderately scaled, the 3rd long; frons smooth; eyes large, round; antennae of male ciliated; thorax clothed with hair only and without crests; fore and hind tibiae fringed with rather long hair, the fore tibiae not spined, the mid tibiae spined, the hind tibiae spined between the spurs only; abdomen with dorsal ridges of hair on basal segments, but without crests. Fore wing with the costa arched towards apex which is rounded, the termen evenly curved and slightly crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the cell one-third length of wing; veins 3, 4 from angle; 5 fully developed from just above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

SECT. I. Fore and hind femora and tibiae of male fringed with very long hair; fore and hind wings with the basal areas clothed with rough androconia on underside, the latter with a fringe of hair on vein 1.

*7585. *Hypanua dinava*.

Ophideres dinava, Beth.-Baker, Nov. Zool. xiii. p. 296 (1906).

♂. Head and thorax deep rufous, the edges of patagia with a purplish fuscous gloss; palpi and antennae scarlet; pectus and legs ochreous tinged with rufous, the fore tarsi reddish; abdomen greyish, the hair at base rufous, the anal tuft ochreous. Fore wing bright rufous striated with fuscous, the area before the postmedial line with a purplish gloss; antemedial line indistinct, rufous, diffused on inner side, excurved below costa and cell; an inverted comma-shaped discoidal spot, rufous above, deep black below, with slight pale outline; postmedial line rufous, diffused and very oblique from costa to discal fold where it is met by an oblique rufous streak from apex, then fine, double, defined on inner side by white points and very oblique to inner margin at antemedial line, the triangular patch beyond it on costal area tinged with scarlet; a yellowish mark from the postmedial line at vein 2, angled outwards in submedian fold, then erect to inner margin; some diffused black below extremity of apical streak; a series of blackish points just before termen. Hind wing fuscous brown leaving some yellowish irroration on termen; cilia yellow. Underside of

both wings pale ochreous irrorated with brown, the basal area clothed with thick fulvous hair.

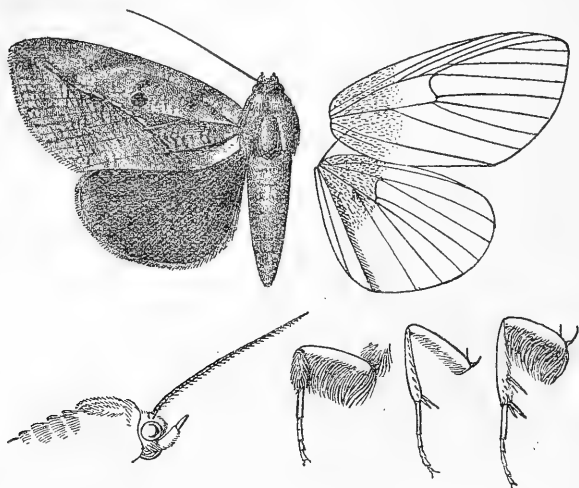


Fig. 107.—*Hypanua dinawa*, ♂. $\frac{1}{2}$.

♀. Fore wing with the terminal area pale olive-yellow below the oblique streak from apex to postmedial line leaving a quadrate rufous patch on inner area beyond the line; the underside without the fulvous hair on basal area; hind wing pale yellow, the terminal half irrorated with brown.

Hab. BR. N. GUINEA, Dinawa (*Pratt*), type † ♂, ♀ in Coll. Bethune-Baker. *Exp.* ♂ 72, ♀ 68 millim.

SECT. II. Fore and mid tibiæ of male moderately fringed with hair; hind wing with the basal and inner areas clothed with rough androconia on underside.

7586. *Hypanua xylina*.

Ophiusa xylina, Dist. A. M. N. H. (7) i. p. 229 (1898).

Head and thorax bright yellowish rufous; palpi and frons deep rufous; fore and mid tibiæ and tarsi dark brown; abdomen ochreous suffused with brown, the ventral surface ochreous white. Fore wing yellow suffused with rufous; antemedial line rufous slightly defined on outer side by yellow, oblique, sinuous; a black point in middle of cell; reniform rufous defined by brown, constricted at middle; postmedial line rufous slightly defined on outer side by yellow, oblique to inner margin near antemedial line; an oblique dark brown patch from apex to below vein 7,

followed by a series of dark points on the veins, oblique to vein 4 and ending at tornus; a fine crenulate brown line just before termen. Hind wing ochreous suffused with brown; cilia ochreous

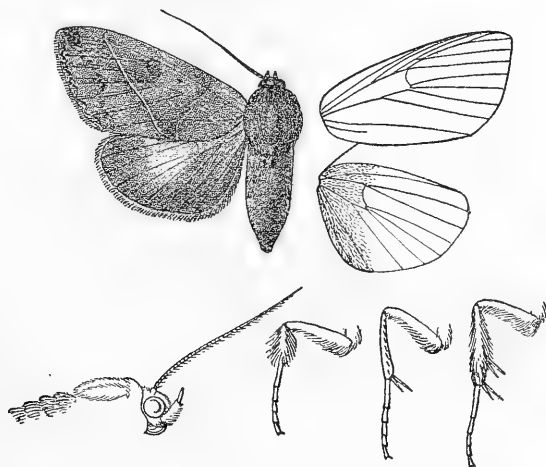


Fig. 108.—*Hypanua xylina*, ♂. 1.

white. Underside ochreous white; fore wing with diffused fuscous subterminal band from costa to submedian fold.

Hab. TRANSVAAL, Pretoria (*Zutrencka*), 1 ♀ type; NATAL (*Marshall*), 1 ♂, 1 ♀; CAPE COLONY, Transkei (*Miss F. Barrett*), 1 ♂, 1 ♀. *Exp.* 62 millim.

Genus **HELIOPHISMA**, nov.

Type, *H. croceipennis*.

Proboscis fully developed; palpi upturned, the 2nd joint reaching to about vertex of head and moderately scaled, the 3rd moderate; frons smooth; eyes large, round; antennæ of male ciliated; thorax clothed almost entirely with hair and without crests; tibiæ fringed with long hair in male, the mid tibiæ dilated with a groove containing a fringe of scales, the fore tibiæ not spined, the mid and hind tibiæ spined, the mid tarsi of male with the 1st joint fringed with hair above, abdomen with dorsal ridges of hair on basal segments. Fore wing with the costa highly arched towards apex which is somewhat produced and falcate, the termen evenly curved and slightly crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the cell about one-third length of wing; veins 3, 4 from angle; 5 fully developed from just above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

A. Fore wing with the antemedial line single, straight.

a. Fore wing suffused with red-brown.

α¹. Hind wing with the basal area brown *catocalina*.

α¹. Hind wing with the basal area yellow..... *zanzibarica*.

b. Fore wing not suffused with red-brown, hind wing with the basal area yellow

croceipennis.

- B. Fore wing with the antemedial line double, waved.
 a. Hind wing with black postmedial patch.
 a¹. Fore wing with the termen suffused with white;
 hind wing with the black patch large and
 quadrate *eurypлага*.
 b¹. Fore wing with the termen not suffused with white;
 hind wing with the black patch wedge-shaped..... *clugi*.
 b. Hind wing without black postmedial patch..... *xanthoptera*.

7587. *Heliophisma catocalina*. (Plate CCXVI. fig. 1.)

Ophiodes catocalina, Holl. Ent. News Philad. v. p. 58 (1894).

Head and thorax red-brown; palpi, antennæ, pectus and legs greyish brown; abdomen brown. Fore wing yellowish entirely suffused with red-brown; subbasal line brown, excurved below costa and ending at submedian fold; antemedial line brown, oblique; reniform narrow, defined by brown; medial line slightly excurved below costa, then slightly incurved; postmedial line oblique to vein 6, then inwardly oblique and waved; subterminal line dark brown, diffused; a series of black points just before termen; cilia brown, white at tips except towards tornus. Hind wing brown; the costal area yellow to the oblique yellow postmedial band ending at submedian fold and followed by a broad black subterminal band, its outer edge excurved between veins 7 and 3; terminal area yellow to vein 4, then red-brown; cilia red-brown tipped with white between veins 4 and 2. Underside of fore wing yellow, the costal and terminal areas grey-brown, a small blackish discoidal lunule, slight medial postmedial and subterminal lines towards costa and a diffused blackish subterminal patch between vein 5 and submedian fold; hind wing grey-brown with small blackish discoidal spot, two curved postmedial lines, and a diffused subterminal line.

Hab. SIERRA LEONE (*Clements*), 1 ♂, 1 ♀; GOLD COAST, Accra (*Higlett*), 1 ♀, Bibianaha (*Spurrell*), 1 ♀, Kumasi (*Whiteside*), 2 ♀; S. NIGERIA, Lagos, Ebute Meta (*Boag*), 1 ♂, Old Calabar (*Miss Kingsley, Sampson*), 1 ♂, 1 ♀, Ilesha (*Humfrey*), 2 ♂, 5 ♀; GABOON, Ogové R., 1 ♀ co-type. *Exp.* 64-70 millim.

7588. *Heliophisma zanzibarica*, n. sp. (Plate CCXVI. fig. 2.)

♀. Head, thorax, and abdomen yellow tinged with fulvous red; palpi and legs irrorated with brown. Fore wing yellow suffused with fulvous; antemedial line dark brown, oblique, slightly incurved at vein 1; a diffused brown discoidal spot; medial line dark brown, oblique below discal fold beyond the cell; postmedial line dark brown, excurved to vein 4, then oblique; subterminal line dark brown, oblique, slightly angled outwards at vein 7; a series of blackish points just before termen; cilia dark brown at base. Hind wing yellow slightly tinged with fulvous; a blackish subterminal band, broad to vein 3, then narrowing to termen at

vein 1, its outer edge slightly waved; the terminal area suffused with fulvous below vein 3; the underside yellow suffused and irrorated with brown except on inner area, a blackish discoidal point, curved brown postmedial line from costa to vein 2, diffused subterminal shade, and series of blackish points before termen.

Hab. BR. E. AFRICA, Pemba I., 1 ♂ type. *Exp.* 56 millim.

7589. ***Heliophisma croceipennis*.**

Ophisma croceipennis, Wlk. xiv. 1377 (1857).

Ophisma varians, Mab. Ann. Soc. Ent. Fr. 1897, p. 224.

Head and thorax orange-yellow; palpi, antennæ, fore legs and the tarsi brown; abdomen yellow, the ventral surface tinged with brown. Fore wing orange-yellow irrorated with red-brown; subbasal line red-brown, somewhat oblique, from costa to submedian fold; antemedial line red-brown, oblique; reniform small, defined by red-brown; medial line oblique, red-brown; postmedial line oblique to vein 6, then slightly incurved and minutely waved;

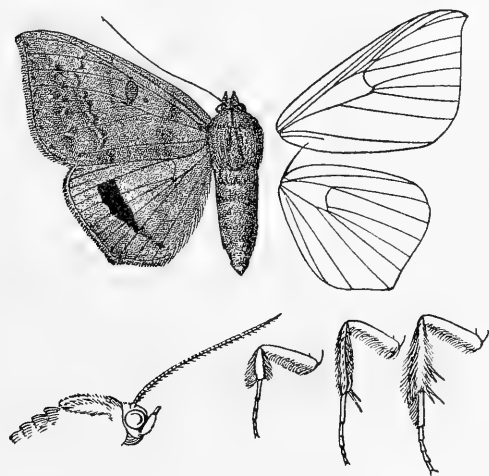


Fig. 109.—*Heliophisma croceipennis*, ♂. †.

subterminal line red-brown, oblique, slightly sinuous, a series of brown points just before termen; cilia red-brown, whitish at tips except towards tornus. Hind wing yellow; a wedge-shaped black postmedial patch between veins 6 and 2; blackish points before termen between veins 5 and 2; cilia red-brown. Underside yellow, the costa and termen of fore wing and the hind wing tinged with brown, the latter with faint curved medial and two postmedial lines.

Ab. 1 *variens*. Fore wing with blackish spots before the

antemedial line in and below cell and above inner margin, the reniform filled in with grey-black, the postmedial line with small blackish lunules on it and with maculate line beyond it from veins 5 to inner margin, the subterminal line blackish and with black spots beyond it from vein 5 to submedian fold.

Hab. BR. E. AFRICA, Kilimanjaro, 1 ♀; BR. C. AFRICA, Zomba (Johnston), 1 ♂, 2 ♀, Blantyre (Old), 8 ♂, Mlanje Boma (Neave), 2 ♀; Gazaland, Chirinda Forest (Marshall), 1 ♀; TRANSVAAL, Barberton, 1 ♀, Zoutspanberg (Distant), 1 ♀; NATAL, Durban (Gueinzus, Higgins, Gooch, Burrows, Bowker), 2 ♂, 6 ♀ type. *Exp.* 58-70 millim. Type † *varians* in Coll. Mabille.

7590. *Heliophisma euryplaga*, n. sp. (Plate CCXVI. fig. 3.)

♂. Head and thorax bright fulvous; palpi, tibiæ and tarsi dark brown irrorated with white; antennæ blackish; abdomen pale red-brown, the ventral surface deep red-brown. Fore wing fulvous yellow suffused with red-brown; a slight grey subbasal line from costa to a grey patch in submedian interspace with a minute tuft of white scales at base of vein 1; two rather diffused oblique waved fuscous antemedial lines; a black point in middle of cell; a greyish discoidal spot with blackish points at angles of cell and a point at its inner edge; two rather diffused waved dark medial lines, excurved beyond the cell, then incurved; postmedial line blackish, dentate, excurved to vein 4, then oblique, some white points beyond it on costa; subterminal line diffused, fuscous, waved; the terminal area suffused with white and with series of slight dark striæ before termen; cilia white, brown towards tornus. Hind wing orange-yellow with large rather quadrate black subterminal patch from vein 6 to below 3, rounded below; the termen suffused with red-brown from apex to vein 2; cilia red-brown, white at tips from apex to vein 2. Underside of fore wing yellow, the costa red-brown irrorated with white, a black discoidal lunule, the terminal area red-brown from costa to submedian fold towards which it narrows, with fuscous suffusion on its lower part, waved whitish postmedial and subterminal lines from costa to vein 5, the termen white with a crenulate brown line with black points at the interspaces just before it, cilia red-brown, white at tips except towards tornus; hind wing rufous irrorated with white on basal half, the inner area yellow, a black discoidal point, indistinct curved minutely waved medial, postmedial and subterminal lines except on inner area, some white and black irroration below terminal part of vein 2, the termen with some white towards apex, a crenulate blackish terminal line with black points with white beyond them at the interspaces.

Hab. CENTR. MADAGASCAR (Pratt), 1 ♂ type. *Exp.* 66 millim.

7591. *Heliophisma clugi*. (Plate CCXVI. fig. 4.)*Ophiusa klugii*, Boisd. Faun. Ent. Madag., Lép. p. 103 (1833).*Ophisma rivularis*, Butl. A. M. N. H. (4) xvi. p. 407 (1875).

Head and thorax orange; palpi, tibiæ, and tarsi brown irrorated with white; abdomen orange-yellow, the ventral surface rufous irrorated with white. Fore wing orange suffused and irrorated with rufous, the subterminal area with a slight silvery purple gloss; subbasal line rufous, curved, from costa to submedian fold; antemedial line rufous, double, oblique, waved, the inner line obsolete on costal half; a rufous point in middle of cell; reniform rather small, defined by rufous; medial line rufous, double, dentate, excurved to beyond lower angle of cell, then incurved; post-medial line double, the outer line indistinct, dentate, oblique to vein 6, then inwardly oblique; an indistinct, double, waved diffused subterminal line; a series of dark points just before termen; cilia rufous at base, white at tips except at apex and towards tornus. Hind wing orange-yellow; a wedge-shaped black postmedial patch between veins 6 and 2 continued as a faint oblique line to vein 1; the termen rufous at middle with a series of black points before it; cilia at middle rufous with white tips. Underside with the costal and terminal areas of fore wing and the hind wing except inner area tinged with purple-brown and irrorated with white; fore wing with discoidal spot, minutely waved post-medial line except on inner area, and series of points before termen towards apex; hind wing with discoidal point, two minutely waved curved postmedial lines except on inner area, and series of points before termen.

Ab. 1. Fore wing with the lines maculate and blackish, the reniform filled in with black, an oblique maculate black streak from apex to the subterminal line.

Ab. 2. *rivularis*. Similar, but head, thorax, and fore wing yellower; hind wing with slightly waved edges to the postmedial patch.

Hab. SIERRA LEONE (*Morgan*), 1 ♂, 2 ♀, Bishop's Court (*Smith*), 1 ♂; GOLD COAST, Ashanti, Kumasi (*Whiteside*), 1 ♂, 1 ♀, Obuassi (*Graham*), 1 ♀; S. NIGERIA, Lagos, Ebute Meta (*Boag*), 1 ♀, Old Calabar (*Cockburn*, *Crompton*), 2 ♀, Ilesha (*Humfrey*), 4 ♂, 1 ♀; CONGO (*Curror*), 1 ♂ type *rivularis*; ANGOLA, Ambriz (*Monteiro*), 1 ♀; MADAGASCAR, Forêt d'Ambre (*Meade-Waldo*), 1 ♀; BOURBON. *Exp.* 60-70 millim.

7592. *Heliophisma xanthoptera*.*Ophiusa xanthoptera*, Hmps. P. Z. S. 1910, p. 418, pl. xxxvi. f. 22.

Head and thorax orange; palpi and fore and mid tibiæ brown irrorated with white; tarsi brownish; abdomen pale yellow. Fore wing orange, the costal edge reddish brown; subbasal line represented by a red-brown point below costa and fuscous spot in cell; antemedial line red-brown, minutely waved, oblique to

submedian fold below which there is a fuscous spot before it; orbicular a dark point; reniform an elliptical rufous spot with some fuscous on its inner edge; a lunulate rufous medial line, excurved beyond the cell, then incurved; postmedial line formed of rufous lunules, indistinctly double below vein 4, oblique from costa to vein 6, then inwardly oblique; an indistinct minutely waved rufous subterminal line with fuscous spot on it below vein 7; terminal area tinged with rufous except at apex; a series of black points just before termen. Hind wing orange-yellow faintly tinged with rufous; a series of minute dark points just before termen; the underside suffused with rufous and white except on inner area; a black discoidal point, indistinct curved minutely waved postmedial line, and traces of medial and subterminal lines.

Ab. 1. Fore wing with the dark marks on basal area and the spot below vein 7 absent.

Hab. SIERRA LEONE, 1 ♀; N.W. RHODESIA, Alala Plateau (*Neave*), 1 ♂; N.E. RHODESIA, Tanganyika Plateau (*Neave*), 1 ♂ type; LORENÇO MARQUES, Delagoa Bay, 1 ♀. *Exp.* 66 millim.

Genus **PTEROCYCLOPHORA.**

Type.

Pterocyclophora, Hmps. Ill. Het. B.M. ix. p. 109 (1893) *pictimargo*.

Proboscis fully developed; palpi upturned, the 2nd joint reaching to vertex of head and broadly scaled, the 3rd long and moderately scaled; frons smooth, with large tuft of scales above; eyes large, round; antennæ of male bipectinate with rather short branches dilated at extremities and ending in a bristle, of female typically with bristles and cilia; thorax clothed almost entirely with scales, the prothorax with small spreading crest, the metathorax with large crest; fore tibiæ broadly fringed with hair on outer side and not spined, the mid and hind tibiæ spined and with tufts of scales on outer side at middle and extremity; abdomen with crests on basal segments, the crest on 2nd segment very large. Fore wing with the costa highly arched towards apex which is somewhat produced, the termen evenly curved, crenulate, the cilia highly crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the termen crenulate and produced to a short tail at vein 4, the cilia highly crenulate; the cell about one-third length of wing; veins 3, 4 shortly stalked or from cell; 5 fully developed from just above angle of cell; 6, 7 from upper angle; 8 anastomosing with the cell near base only; male with the inner area reduced to a lobe with an incision at its extremity at middle of inner margin.

SECT. I. Antennæ of female bipectinate with short branches ending in bristles, serrate and ciliated towards apex.

7593. *Pterocyclophora ridleyi*, n. sp.

♀. Head and thorax ochreous mixed with deep red-brown; palpi with the 1st and 2nd joints red-brown with some white scales in front; antennæ red-brown; pectus white, red-brown in front; tibiæ banded white and red-brown, the tarsi red-brown; abdomen ochreous tinged with rufous and with slight whitish segmental lines, the crest on 2nd segment with blackish scales at tips, the anal tuft brown, the ventral surface white with small

paired red-brown spots on terminal segments. Fore wing ochreous tinged with rufous and irrorated with a few dark brown scales; a red-brown mark below base of cell and subbasal mark on inner margin with small white spot beyond it; a faint diffused red-brown medial line, excurved beyond the cell, then sinuous; an indistinct greyish postmedial line, excurved below costa, then oblique to above vein 1 where it terminates; the terminal area dark brown except towards apex, its inner edge defined by a red-brown line with the sinuous blackish subterminal line just beyond it; a black point before termen above vein 6 and slight sinuous black line with white points on it in the interspaces on the dark

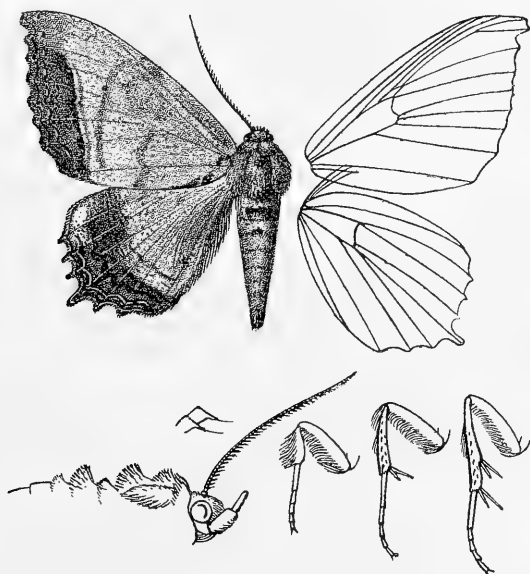


Fig. 110.—*Pterocyclophora ridleyi*, ♀. 1.

area; a fine dark terminal line and pale line at base of cilia. Hind wing ochreous tinged with rufous; a minute rufous mark at middle of vein 1 and a slight postmedial line from discal fold to inner margin; a diffused fuscous brown patch from below costa towards apex to discal fold, with a red-brown line from it to inner margin followed by the waved black subterminal line; the terminal area dark brown except at apex irrorated with some ochreous and white scales; a fine sinuous black line before termen defined on outer side by white in the interspaces; the veins of terminal area slightly streaked with rufous. Underside of both wings ochreous thickly irrorated with black-brown scales except on

inner half of fore wing to subterminal line and inner margin of hind wing; fore wing with oblique medial dark brown line from middle of cell to submedian fold, oblique postmedial line from below costa to vein 1, a slightly curved subterminal line from vein 6 to tornus, a series of dark points before termen; hind wing with faint curved medial line and waved postmedial line with a brown shade beyond it irrorated with black and white scales, a faint diffused subterminal line and series of points before termen.

♂. Fore wing with a violaceous gloss on inner and postmedial areas, the terminal area ochreous irrorated with brown; hind wing with the area between the postmedial and subterminal line ochreous irrorated with brown.

Hab. SINGAPORE (*Ridley*), 1 ♀ type; JAVA in Coll. Rothschild. *Exp.* ♂ 68, ♀ 76 millim.

SECT. II. Antennæ of female with bristles and cilia.

- | | |
|--|---------------------|
| A. Hind wing without medial line..... | <i>huntei</i> . |
| B. Hind wing with obliquely curved medial line from costa to vein 3 | <i>hampsoni</i> . |
| C. Hind wing with slightly oblique medial line extending to inner margin | <i>pictimargo</i> . |

7594. *Pterocyclophora huntei*. (Plate CCXVI. figs. 9 ♂, 10 ♀.)

Pterocyclophora huntei, Warr. Nov. Zool. x. p. 122 (1903), ♀.

Pterocyclophora pratti, Druce, A. M. N. H. (8) iii. p. 348 (1909), ♂.

♂. Head and thorax red-brown mixed with white and some black scales; palpi with the 2nd joint black-brown in front; frons with the lower part white and with two oblique blackish lateral bars; pectus white; fore coxæ with black patch; legs white irrorated with a few black scales, the mid tibiæ with red-brown bands, the hind tibiæ purple-brown, the spurs black at base, white at tips, the mid and hind tarsi tinged with brown; abdomen white suffused with purplish brown, the crests ochreous with some black scales followed by a black dorsal line, the anal tuft black and white, the genital tuft white, the ventral surface white irrorated with black. Fore wing red-brown tinged with purple and strongly suffused with purplish white towards apex, irrorated with a few black scales, the terminal area ochreous white tinged with red-brown and sparsely irrorated with black; the costal edge brownish white; a subbasal white striga from inner margin with a white streak beyond it on the margin; reniform brown defined by white and with ochreous white patch at middle, narrow, produced to a point at upper extremity and strongly angled inwards on median nervure; a rather diffused and slightly incurved brownish line from it to inner margin, an oblique brownish line from costa above end of cell to vein 4; postmedial line brownish and oblique from costa to vein 4, and with some black marks on it except towards costa, obsolete below vein 4; some minute white streaks beyond it on costa; subterminal line slight, double, blackish filled

in with ochreous white, arising at vein 7, obliquely incurved and ending at tornus, a minute brown spot on its inner side at vein 7 and a black spot on its outer side above vein 4; a fine double dark line before termen, arising below costa and with slight black marks on its inner side towards apex; a fine black terminal line. Hind wing orange-yellow; some purple suffusion irrorated with black on inner area before the slight double sinuous subterminal line which is almost obsolete on costal area, then blackish filled in with white and curved inwards to inner margin, a blackish lunule on its outer edge at vein 4; the terminal area creamy white at apex, then tinged with brown and below vein 4 violaceous white; a double blackish line before termen arising at vein 7 and angled outwards at the tail at vein 4, the termen and cilia red-brown and creamy white except at apex, with some black scales on termen. Under-side of fore wing creamy white irrorated with brown, the area below the cell yellow to beyond middle, the terminal area whiter on inner half, an oblique black medial bar from discal to submedian fold with the white discoidal bar defined by black on its outer edge, postmedial and subterminal dark lines joining each other above tornus and filled in by a wedge-shaped black patch below vein 4; hind wing creamy white irrorated with brown and black, black points in cell and on discocellulars, a black antemedial line excurved from below costa and ending at submedian fold, slightly waved medial and postmedial lines, and a series of black points before termen.

♀. Metathorax and basal crest of abdomen browner, the rest of abdomen paler; fore wing much whiter and only slightly tinged with purple-brown, the terminal area suffused with dark brown, the inner margin without the white streak beyond the subbasal striga, reniform almost obsolete, the medial line obsolete, the double subterminal line straight and filled in with brown, the line before termen indistinct and with white striæ on it at the veins; hind wing with large fuscous black subapical patch leaving the apical part of costa and termen white, the patch extending to vein 4 and with the double line from it to inner margin straight, the terminal area dark purple-brown with the double line before termen broken up into small spots.

Hab. DUTCH N. GUINEA, Fak-fak (*Pratt*), 1 ♀; BR. N. GUINEA (*Le Hunte*), type ♀ in Coll. Rothschild. *Exp.* ♂ 68, ♀ 78 millim. Type ♀ *pratti* in Coll. Druce.

*7595. *Pterocyclophora hamptoni*.

Pterocyclophora hamptoni, Semper, Reis. Phil., Schmett. ii. p. 541, pl. 60. f. 16 (1900).

♂. Head, thorax, and abdomen whitish mixed with brown, the vertex of head and tegulæ darker. Fore wing whitish tinged with pale red-brown and purple and irrorated with black-brown; an oblique white patch at base of inner margin; an indistinct diffused

brown medial line with the obscure whitish pear-shaped reniform stigma just beyond it; a very indistinct V-shaped postmedial band; a double subterminal straight brown line filled in with whitish from below apex to inner margin; the terminal area whiter with a fine double brown line filled in with white just before termen and a fine white line at base of cilia. Hind wing yellow, the terminal area purplish grey suffused with brown; medial line brown, obliquely curved, from costa to vein 3; a fuscous black subapical patch from costa to vein 5, with a curved dark postmedial line from it to submedian fold and a similar double subterminal line filled in with whitish; some dark striation on terminal half of vein 1; a fine white line before termen and a white line at base of cilia.

♀. Fore wing with the reniform obsolete, the terminal area browner.

Hab. PHILIPPINES, Luzon. *Exp.* ♂ 72, ♀ 78 millim. This species is unknown to me.

7596. *Pterocyclophora pictimargo*.

Pterocyclophora pictimargo, Hmps. Ill. Het. B.M. ix. p. 113, pl. 165. f. 16 (1893).

♀. Head and thorax chocolate-brown mixed with grey and some white; pectus and legs white, the tibiae and tarsi banded

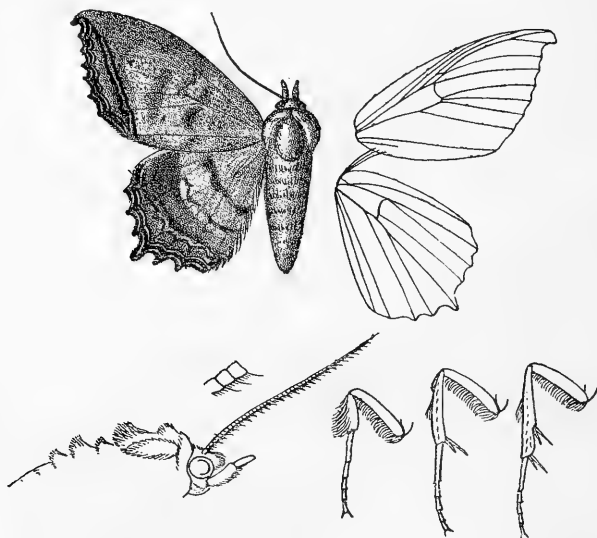


Fig. 111.—*Pterocyclophora pictimargo*, ♀. $\frac{1}{2}$.

with red-brown and the hind femora with red-brown spot. Fore wing pale purplish grey sparsely irrorated with black-brown scales,

the terminal area greyish suffused and irrorated with dark brown; a slight red-brown mark above base of vein 1 and two subbasal striæ on inner margin; traces of an oblique sinuous red-brown antemedial line; a faint yellowish discoidal spot, constricted at middle; traces of a red-brown postmedial line, oblique from costa to vein 4, then bent inwards to lower angle of cell and again excurved and with curved series of minute red-brown spots beyond it between veins 6 and 3; subterminal line double filled in with whitish from vein 7 to inner margin, the inner line red-brown, the outer dark brown and bent outwards towards apex above vein 7; a series of white striæ before termen from vein 8 to submedian fold slightly defined by blackish; a fine whitish line at base of cilia. Hind wing yellow; a large apical fuscous brown patch, the postmedial area and inner area to before middle irrorated with red-brown and tinged with rufous before subterminal line, the terminal area greyish suffused and irrorated with dark brown; a diffused brown medial line from vein 6 to inner margin, interrupted at submedian fold; a curved postmedial line from discal fold to inner margin; a double subterminal line filled in with some blue-white scales towards tornus, the inner line red-brown below vein 5; a fine white line before termen, slightly defined by blackish and waved below vein 4; a fine white line at base of cilia. Underside of both wings ochreous white irrorated with black-brown except on inner half of fore wing to the postmedial line; fore wing with oblique medial brown band and erect postmedial band from subcostal nervure and vein 6 to submedian fold, an oblique subterminal line, indistinct on costal half, and a series of points before termen from apex to above vein 4; hind wing with antemedial brown striga from costa and waved medial and postmedial lines from vein 6 to vein 1, a subterminal line between veins 2 and 1, and a series of black points before termen.

Hub. CEYLON, Udagama (*Green*), 1 ♀ type. *Exp.* 66 millim.

Genus **PRIONOPTERA.**

Type.

Prionoptera, Herr.-Schäff. Aussereur. Schmett. p. 69 (1850) *serra*.

Proboscis fully developed; palpi obliquely upturned, the 2nd joint reaching to vertex of head and broadly scaled, the 3rd long and thickly scaled; frons smooth; eyes large, round; antennæ of male bipectinate with long branches, the apex with cilia and bristles, the basal joint with tuft of scales; thorax clothed almost entirely with scales, with large ridge-like dorsal crest and shorter spreading metathoracic crest; fore and mid tibiæ moderately fringed with hair, the tibiæ smoothly scaled, all the tibiæ spined; abdomen with dorsal crests on two basal segments only. Fore wing with the costa highly arched, the apex acute, the termen and cilia strongly crenulate, the termen rather oblique below vein 4; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the cell about half the length of wing; vein 3 from well before angle; 5 fully developed from just above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

- A. Fore wing with the postmedial line formed by minute lunulate black spots and slightly incurved below vein 4.
 a. Fore wing with the reniform angled inwards on median nervure to origin of vein 2 ... *serraoides*.
 b. Fore wing with the reniform not angled inwards to origin of vein 2.
 a¹. Fore wing with the orbicular a whitish point *serra*.
 b¹. Fore wing with whitish annulus to the orbicular *socorrensis*.
 B. Fore wing with the postmedial line continuous and strongly incurved below discal fold *æxonina*.

7597. *Prionoptera serraoides*. (Plate CCXVI. fig. 5.)

Prionoptera serraoides, Dogn. Le Nat. (2) vi. p. 85 (1892).

♂. Head and thorax red-brown mixed with ochreous; palpi with the 2nd joint blackish at sides; pectus with some fuscous and grey hair; tibiæ and tarsi ochreous white at sides; abdomen pale reddish brown. Fore wing ochreous brown suffused slightly on medial area and prominently on terminal area with dark brown and slightly irrorated with black; a slight subbasal line from costa to submedian fold with a dark angled mark below costa; the antemedial line ochreous, diffused and bidentate below costa, then inwardly oblique and incurved to inner margin; orbicular minute, ochreous defined by black, produced to a point on outer side; reniform whitish with a fine brown line defining its annulus, bent outwards at upper extremity and inwardly to a point at origin of vein 2 at lower extremity; a highly waved medial line; the postmedial line ochreous, waved from costa to vein 4 and angled inwards at veins 6 and 5, below vein 4 incurved, with some small black spots on its inner edge from costa to vein 4 and one above inner margin; the terminal area dark brown, its inner edge slightly sinuous and incurved to costa; a dark subterminal dentate line with ochreous spots on its outer edge; a terminal series of black and ochreous points; a fine black terminal line and ochreous line at base of cilia. Hind wing ochreous brown, the terminal area slightly darker with a fine dark terminal line; the cilia ochreous; the underside pale irrorated with brown, a pale discoidal lunule, curved diffused postmedial line, a diffused subterminal band, a series of points just before termen.

Hab. ECUADOR, Loja, 1 ♂. *Exp.* 54 millim. Type † ♂ in Coll. Dognin.

7598. *Prionoptera serra*.

Prionoptera serra, Herr.-Schäff. Aussereur. Schmett. p. 69, f. 516 (1850).

♂. Head and thorax bright red-brown with some dark scales; antennæ, palpi, and upper part of frons dark brown; pectus and femora dark brown, tibiæ and tarsi pale red-brown, the tibiæ with some blackish at base, the spurs ringed with blackish; abdomen pale red-brown, the crest on 2nd segment with dark and greyish tip. Fore wing bright red-brown slightly irrorated with black, the terminal area deep red-brown; subbasal line slight, dark

brown, sinuous, from costa to vein 1; antemedial line dark brown defined on each side by reddish ochreous, somewhat dilated at costa and inner margin, inwardly oblique and almost straight; a sinuous dark brown medial line; a whitish point in middle of cell; reniform whitish slightly defined by dark brown, its centre defined by brown, very narrow, its upper extremity produced and its lower extremity more or less angled inwards on median nervure; post-medial line formed of blackish lunules, almost obsolete between veins 5 and 1, excurved below costa, incurved at discal fold and below vein 4; subterminal line blackish defined on inner side by a grey-brown band except towards costa, waved, incurved at discal fold and excurved at middle; a fine pale line at base of cilia. Hind wing pale red-brown with slight blackish irroration towards

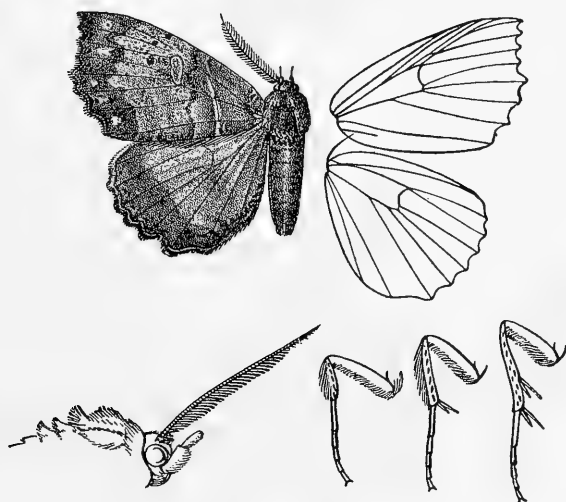


Fig. 112.—*Prionoptera serra*, ♂. }

tornus, the apical area suffused with darker brown; postmedial line represented by a blackish striga at inner margin; two rather diffused dark almost straight subterminal lines; a slight waved dark terminal line with blackish points before it in the interspaces; a fine pale line at base of cilia. Underside grey-brown; fore wing with white discoidal bar and slight double subterminal line; hind wing irrorated with dark brown, a blackish discoidal spot with white point in centre, a dark postmedial line somewhat incurved below discal fold, and double subterminal line, the inner line diffused.

♀. Hind wing with the termen yellowish.

Hab. VENEZUELA; ECUADOR, Loja, 1 ♂; BOLIVIA, 1 ♂, Yungas la Paz, 1 ♂. *Exp.* 58 millim.

7599. *Prionoptera socorrensis*. (Plate CCXXII. fig. 3.)*Prionoptera socorrensis*, Dogn. Hét. Nouv. Am. Sud, vi. ined.

♂. Head and thorax red-brown slightly mixed with ochreous and rufous; palpi and frons dark brown, the former ochreous in front; tibiæ and tarsi ochreous; abdomen red-brown, some ochreous at base of sides, the anal tuft and sublateral streaks ochreous. Fore wing purplish red-brown sparsely irrorated with black, the medial area, basal part of postmedial and apical part of terminal area more ochreous, the inner margin with bright rufous streak; subbasal line brown defined on outer side by ochreous, excurved below costa, then oblique and ending at vein 1; antemedial line brown defined on each side by ochreous, almost erect and slightly sinuous; orbicular with whitish annulus, round; reniform with pale centre defined by brown and whitish annulus, somewhat produced at upper extremity and angled inwards on median nervure; a waved brown medial line; postmedial line ochreous defined on inner side by small blackish spots to vein 4 and by a blackish mark at inner margin, excurved and slightly waved to vein 4, then incurved and again excurved below vein 2; a faint sinuous line defining the ochreous and red-brown areas; an indistinct brown postmedial line excurved below vein 7 and at middle; a series of small dark spots just before termen defined on outer side by pale striæ; a fine pale line at base of cilia. Hind wing red-brown; a small rufous patch at tornus defined on inner side by a dark striga; a series of minute dark spots before termen; cilia chequered dark brown and rufous; the underside ochreous irrorated with brown, some brown suffusion on basal costal area extending into the cell, a curved brown band just beyond middle and a diffused subterminal line.

Hab. COLOMBIA, Monte Socorro (*Fussl*), 1 ♂ co-type. *Exp.* 52 millim.

7600. *Prionoptera æxonia*.*Sypna æxonia*, Druce, Biol. Centr.-Am., Hét. i. p. 367, pl. 32. f. 3 (1890).

♂. Head and thorax bright red-brown with some dark scales; palpi dark brown; pectus and legs pale red-brown, the spurs with dark rings; abdomen greyish brown, the crest on 2nd segment darker at tip. Fore wing bright red-brown slightly irrorated with black scales; subbasal line slight, pale, almost straight, from costa to vein 1; antemedial line indistinctly double filled in with reddish ochreous, almost straight and erect, a black spot beyond it below vein 1; two black points with a faint pale mark between them in middle of cell; reniform with slight pale annulus, narrow, somewhat produced at upper extremity; postmedial line rather diffused, dark, strongly incurved and defined on inner side by a fine pale line below discal fold, some white points beyond it on costa; subterminal line slight, dark, incurved at discal fold and excurved at middle, below vein 2 forming two black lunules with a whitish

spot beyond it at submedian fold, a fine pale line at base of cilia. Hind wing pale red-brown; postmedial line represented by a pale and dark striga at inner margin; subterminal line dark, obsolescent towards costa; the termen and cilia ochreous whitish to discal fold, the cilia then with a pale line at base. Underside grey-brown irrorated with dark brown; fore wing with a dark spot in end of cell and diffused postmedial line from below costa to submedian fold; hind wing with two slight dark discoidal strigæ, a curved dark postmedial line, and two faint diffused subterminal lines.

Hab. Mexico, Jalapa (*Godman, Hoege*), 2 ♂ type, Godman-Salvin Coll. *Exp.* 58-62 millim.

Genus **TOLNA.**

	Type.
<i>Tolna</i> , Wlk. Proc. Nat. Hist. Soc. Glasg. i. p. 355 (1873)	<i>versicolora</i> .
<i>Epistona</i> , Möschl. Verh. zool.-bot. Ges. Wien, xxxiii. p. 302 (1883)	<i>limula</i> .

Proboscis fully developed; palpi upturned, the 2nd joint reaching to vertex of head and rather slenderly scaled, the 3rd long; frons smooth; eyes large, round; antennæ of male almost simple; thorax clothed with hair and hair-like scales, the prothorax without crest, the metathorax with spreading crest; tibiæ fringed with long hair in male, smoothly scaled in female, the fore tibiæ not spined, the hind tibiæ spined; abdomen with dorsal crests on basal segments. Fore wing with the apex rounded, the termen evenly curved, crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the cell about one-third length of wing; veins 3, 4 from angle; 5 fully developed from just above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

- A. Fore wing with oblique white band before the postmedial line from costa to vein 4 *versicolora*.
- B. Fore wing without oblique white band before the postmedial line.
 - a. Fore wing with the reniform not enclosed by a loop-shaped line from costa to below the cell.
 - a¹. Hind wing without apical white patch.
 - a². Fore wing with the subterminal line obtusely angled inwards at discal fold *symplocoides*.
 - b². Fore wing with the subterminal line acutely angled inwards at vein 5 *complicata*.
 - b¹. Hind wing with white apical patch *chionopera*.
 - b. Fore wing with the reniform enclosed by a loop-shaped line from costa to below the cell.
 - a¹. Fore wing with the outer part of the loop-shaped line not angled outwards at vein 5 *variegata*.
 - b¹. Fore wing with the outer part of the loop-shaped line angled outwards at vein 5.
 - a². Fore wing uniformly suffused with dark brown and some red-brown *sinifera*.
 - b². Fore wing with the medial area grey-white irrorated with brown *limula*.

7601. ***Tolna versicolora*.**

Tolna versicolor, Wlk. Proc. Nat. Hist. Soc. Glasg. i. p. 355, pl. vii. f. 10 (1873).

Head and thorax deep red-brown irrorated with a few white

scales, the tegulæ with a black line near base; tarsi ringed with ochreous white; abdomen dark red-brown. Fore wing deep red-brown slightly irrorated with blue-white scales; subbasal line ochreous, waved, from costa to submedian fold; antemedial line indistinct, brown slightly defined on outer side by blue-white scales, angled outwards at subcostal nervure, then rather oblique and slightly waved; medial line indistinct, brown defined on outer side by bluish white, waved, oblique from costa to vein 4, then inwardly oblique; postmedial line dark brown, oblique and with white band before it to vein 4, then inwardly oblique and waved to inner margin, defined on inner side by white to vein 3 and with slight

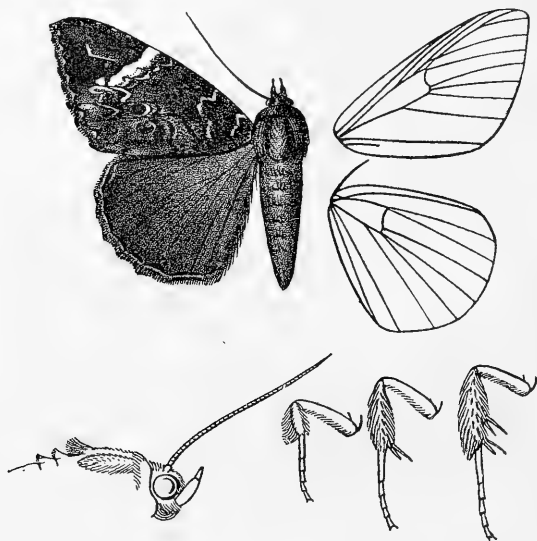


Fig. 113.—*Tolna versicolora*, ♂. ♀.

bluish lunules before it and blackish marks beyond it below veins 3 and 2, some white beyond it at middle and a red-brown patch on costal area with some white points on costa; subterminal line slight, whitish, waved to vein 6, then bent inwards to near the postmedial line, waved and incurved below vein 4, the area beyond it dark brown from apex obliquely to vein 4; a waved dark terminal line with white points beyond it at the interspaces; cilia fuscous brown, chequered with greyish at tips. Hind wing very dark red-brown; the termen very narrowly white at apex, then with dark line; cilia fuscous. Underside very dark red-brown; fore wing with oblique white band from costa beyond middle to termen below middle, narrow and sinuous at costa, a series of slight black lunules just before termen with white points beyond them; hind wing slightly irrorated with white, a faint dark

discoidal bar and very indistinct medial, postmedial, and subterminal lines, the postmedial line with slight white mark at discal fold and the postmedial and subterminal lines with slight white marks at submedian fold.

Hab. SIERRA LEONE (*Clements*), 4 ♂; S. NIGERIA, Old Calabar (*Crompton*), 1 ♀, Bende (*Simpson*), 1 ♀; CAMEROONS, Mbongo, 1 ♀; CONGO. *Exp.* 66-76 millim.

7602. Tolna sypnoides. (Plate CCXVI. figs. 6 ♂, 7 ♀.)

Achæa sypnoides, Butl. A. M. N. H. (5) ii. p. 464 (1878), ♂.

Ophiusa dædalea, Mab. Bull. Soc. Zool. Fr. iii. p. 93 (1879).

Dysgonia meandrica, Saalm. Lep. Madag. p. 469, f. 169 (1891), ♀.

♂. Head and thorax red-brown mixed with some dark brown and ochreous; palpi, pectus, and legs ochreous tinged with red-brown, the tarsi brown with pale rings; abdomen grey-brown, the crests reddish brown, the ventral surface whitish tinged with brown. Fore wing with the basal area and apical area to below vein 4 red-brown, the rest of wing white slightly irrorated with brown; subbasal line black defined on inner side by white, waved, from costa to submedian fold; antemedial line strong, black, rather irregularly waved, some blackish suffusion before it in the cell; small black spots at angles of cell with a blackish patch above them on costa; a faint waved brown line arising from it, excurved beyond the cell, then incurved; postmedial line black, obsolescent from below vein 4 to below 2, forming a triangular spot at costa defined on outer side by white, slightly bent outwards below costa, then waved, oblique below vein 4, a brown shade before it between veins 6 and 4, some white points beyond it on costa; subterminal line whitish towards costa below which it is incurved, broadly defined on inner side by black from vein 7 to below 4 and strongly incurved at discal fold, then waved, below vein 4 faintly defined by brown and with slight black mark before it below vein 3; some black suffusion at apex; a fine waved black line just before termen with black points at the interspaces; cilia red-brown with fine white line at base and chequered with white at tips. Hind wing reddish brown with a slightly darker subterminal shade; a faint pale spot beyond the cell; an oblique whitish bar from vein 2 to termen at vein 1; an indistinct waved dark terminal line; cilia white with a brown line through them, faint except towards apex, at middle, and towards tornus. Underside whitish tinged with brown, the costal and terminal areas irrorated with brown; fore wing with brown discoidal striga, curved postmedial line and subterminal line angled outwards at vein 7, the area between the postmedial and subterminal lines and the area beyond the subterminal line from above vein 4 to the submedian fold brown; hind wing with faint brown discoidal bar, medial line excurved below costa, curved postmedial line and waved subterminal line excurved below vein 6, the area between the postmedial and subterminal lines brown to submedian fold.

♀. Fore wing with the white area mostly suffused with sap-green and irrorated with blackish, the orbicular a round white spot, the reniform red-brown defined by black, small and diamond-shaped, the medial line distinct with a brown patch before it in submedian interspace; the underside with the postmedial line minutely waved.

Ab. 1. Fore wing wholly suffused with dark brown, in Coll. Mabille.

Hub. SIERRA LEONE (*Mitford*), 1 ♂, Port Lokko (*Penny*), 1 ♂; GOLD COAST, Tarkwa (*Justice*), 1 ♂, 2 ♀; S. NIGERIA, Old Calabar, 1 ♂ type; NATAL, Howick (*Becker*), 1 ♂, Durban (*Leigh*), 1 ♀; CAPE COLONY, Knysna (*Newdigate*), 1 ♀; MADAGASCAR, 2 ♂, Betsileo (*Cowan*), 1 ♀. *Exp.* 64–80 millim. Type † ♂, ♀ *dædalea* in Coll. Mabille; the wrapper of the volume gives 1879 as the year of publication.

7603. *Tolna complicata*. (Plate CCXVI. fig. 8.)

Sypna complicata, Butl. A. M. N. H. (5) v. p. 389 (1880); Waterh. Aid, ii. pl. 159. f. 1.

♀. Head and thorax red-brown and black-brown mixed with ochreous; palpi ochreous tinged with red-brown; pectus and legs brown mixed with grey; abdomen pale grey-brown, the crests reddish brown, the ventral surface brown irrorated with white. Fore wing red-brown irrorated and in parts suffused with black-brown and some grey; a small tuft of white scales at base; subbasal line black slightly defined on each side by whitish, waved, from costa to vein 1; antemedial line blackish defined on outer side by white and with white striga before it on costa, oblique, waved; reniform with dark centre and blackish annulus, defined by white, large and somewhat diamond-shaped; a slight ochreous white medial bar in submedian interspace; postmedial line blackish slightly defined on each side by ochreous white, expanding into a spot defined on each side by white at costa, with ochreous white lunule before it at discal fold extending to the reniform, and with white mark before it at inner margin, the line slightly bent outwards below costa, then dentate, rather oblique to vein 4, then inwardly oblique; a slight dark shade beyond it and some white points on costa; subterminal line ochreous white with diffused black streaks before it in the interspaces, angled outwards at vein 7, acutely angled inwards at vein 5 to near the postmedial line, excurved and slightly waved at middle and angled inwards at submedian fold; a fine waved black terminal line with small spots at the interspaces; cilia white at base. Hind wing reddish brown, the terminal area darker; an oblique white bar from vein 2 to tornus; an indistinct waved dark terminal line; cilia white with a brown line through them and brown patch at middle; the underside grey-white thickly irrorated with brown; both wings with dark discoidal spots, curved minutely waved and rather diffused medial and postmedial lines, diffused subterminal

shade, and fine waved terminal line with black points at the interspaces.

Hab. MADAGASCAR, Fianarantsoa (*Cowan*), 1 ♀ type, Betsileo (*Cowan*), 1 ♀. *Exp.* 58 millim.

*7604. *Tolna chionopera*. (Plate CCXVI. fig. 13.)

Ercheia chionopera, Druce, A. M. N. H. (8) ix. p. 554 (1912).

♀. Head and thorax dark brown mixed with greyish ochreous, the dorsum of thorax with some white scales; pectus and legs grey-brown, the fore tibiae and tarsi black-brown ringed with ochreous white; abdomen dark-brown, the ventral surface grey-brown. Fore wing ochreous brown largely suffused with black-brown, the terminal area almost entirely black-brown; subbasal line black defined on each side by ochreous, waved, from costa to submedian fold; antemedial line black defined on each side by ochreous, angled outwards below costa and inwards on median nervure, angled outwards below the cell, then oblique; reniform very large, with elliptical black spot in centre, and sinuous grey annulus defined by black-brown; an indistinct double dentate medial line strongly excurved from costa to vein 4, then incurved; postmedial line formed by small black lunules defined on outer side by white and ochreous, oblique to vein 6, angled outwards at veins 4, 3, then oblique and angled outwards at vein 2, some ochreous points beyond it on costa; an ochreous line from costa before apex, angled outwards at vein 7 and at vein 6 bent inwards to the angle of the postmedial line; an ochreous subterminal line arising at discal fold, angled outwards at vein 4, then incurved and ending at tornus; a waved black terminal line and pale line at base of cilia which are white at tips at apex. Hind wing black-brown; a pure white apical patch, the cilia white to below vein 5. Underside grey-brown with black-brown subterminal shade; both wings with white apical patch.

Hab. CAMEROONS, Victoria (*Watkins*), type † ♀ in Coll. Druce. *Exp.* 56 millim.

7605. *Tolna variegata*. (Plate CCXVI. fig. 11.)

Homoptera variegata, Hmps. Ann. S. Afr. Mus. iii. p. 430 (1905).

♂. Head and thorax deep chocolate-brown, the vertex of head edged with grey; the tegulae ochreous at base, the prothorax with ochreous band; pectus, legs, and abdomen grey-brown, the tarsi ringed with whitish, the abdomen with the dorsal crests dark brown, the anal tuft whitish at tip. Fore wing red-brown irrorated and in parts suffused with black, the veins with some white and grey scales; a small tuft of white scales at base; subbasal black bars defined by white from costa and cell; antemedial line black slightly defined on each side by white, oblique, waved, angled inwards on median nervure and vein 1; the medial area

with a black loop slightly defined on each side by white from costa to below the cell, enclosing the black reniform; a diffused dark shade beyond the cell, excurved to vein 4, then incurved; postmedial line black defined on outer side by white, waved, oblique to vein 6 and incurved below vein 4, a small dentate ochreous white mark before it at discal fold and some points beyond it on costa; subterminal line white, obsolescent at middle, an ochreous white streak before it below vein 7 and some dentate black marks at middle, excurved below vein 7 and at middle; a black patch at apex; a crenulate black terminal line with white points beyond it at the veins; cilia with a white mark just below apex. Hind wing fuscous brown; a faint oblique pale subterminal line towards tornus; cilia with a fine pale line at base and white tips; the underside grey-brown, the costal and terminal areas irrorated with white, curved dark medial and postmedial lines except on inner area, a sinuous white subterminal line, and a crenulate black terminal line with white points beyond it at the veins.

Hab. CAPE COLONY, Transkei (*Miss F. Barrett*), 1 ♂ type. *Exp.* 62 millim.

7606. *Tolna sinifera*, n. sp. (Plate CCXVI. fig. 12.)

♀. Head and thorax white mixed with some pale red-brown; antennæ brown; abdomen grey-brown, the ventral surface whitish tinged with brown. Fore wing whitish suffused with dark brown and some red-brown, the costal area whiter, the veins with pale streaks; subbasal line represented by black bars from costa and cell defined by white; antemedial line black slightly defined on each side by white, oblique, waved; orbicular and reniform ill-defined black-brown spots; a black loop defined at sides and below by white from costa to below the cell enclosing the reniform; postmedial line formed by black lunules defined on outer side by white, oblique from costa to vein 6 where it is angled outwards, incurved below vein 4; the terminal area with the interspaces suffused with black-brown; subterminal line whitish, obsolescent except towards costa and below vein 4, incurved between veins 7 and 4 and angled inwards at submedian fold; a waved blackish terminal line with whitish points beyond it in the interspaces; cilia with a fine whitish line at base. Hind wing fuscous brown, the cilia with a whitish line at base. Underside of fore wing suffused with brown, a large whitish patch on disk enclosing a diffused dark discoidal spot, a curved postmedial line; hind wing grey-brown, a faint dark discoidal striga, curved medial and postmedial lines and diffused subterminal band.

Hab. S. NIGERIA, Ilesha (*Humfrey*), 1 ♀ type. *Exp.* 54 millim.

7607. *Tolna limula*. (Plate CCXVI. fig. 14.)

Epistona limula, Möschl. Verh. zool.-bot. Ges. Wien, xxxiii. p. 303, pl. xvi, f. 17 (1883).

♀. Head and thorax pale rufous; abdomen grey tinged with

red-brown. Fore wing white irrorated with red-brown, the basal area except at inner margin and the terminal area suffused with red-brown, the outer part of medial area and the inner medial area whiter; traces of a sinuous dark subbasal line from costa to submedian fold; antemedial line black, oblique, waved; reniform a small lunule indistinctly defined by brown; a black looped line from middle of costa to below the cell enclosing the reniform, its inner edge slightly waved, its outer slightly waved to vein 6, angled outwards at discal fold, then oblique to below the cell; postmedial line black, dentate, oblique to vein 6 and inwardly oblique below vein 4, some white points beyond it on costa; a series of black points before termen with white points beyond them. Hind wing red-brown; the cilia white at tips. Underside grey-white thickly irrorated with red-brown; fore wing with some brown suffusion in cell, a faint diffused postmedial line from below costa to submedian fold, and subterminal shade; hind wing with diffused slightly waved subterminal line.

Hab. CAPE COLONY, Plattenburg Bay, 1 ♀. *Exp.* 56 millim.

Genus CATEPHIODES.

Catephiodes, Beth.-Baker, Nov. Zool. xv. p. 200 (1908) *Type.*
meeci.

Proboscis fully developed; palpi upturned, the 2nd joint reaching to vertex of head and broadly scaled; the 3rd long and dilated at extremity; frons smooth, with tuft of hair; eyes large, round; antennæ of female somewhat laminate and almost simple; thorax clothed with scales and hair mixed, the pro- and metathorax with slight spreading crests; tibiæ slightly fringed with hair, the mid and hind tibiæ spined; abdomen with very large spreading crest at base only. Fore wing with the apex rounded, the termen evenly curved and strongly crenulate, the inner margin with large scale-teeth at middle and near tornus; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the cell about half the length of wing; veins 3, 4, 5 from lower angle of cell; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

*7608. *Catephiodes meeci*.

Catephiodes meeki, Beth.-Baker, Nov. Zool. xv. p. 201 (1908).

♀. Head and thorax dark brown mixed with some rufous; antennæ with the basal joint whitish in front; small tufts of white scales above the eyes; patagia with a few silvery blue scales, their outer edge rufous; pectus with some grey, whitish behind, the tibiæ at extremity and tarsi ringed with ochreous; abdomen dark brown, the basal crest rufous, the ventral surface whitish at base. Fore wing dark brown mixed with rufous and with a slight silvery blue gloss especially on the veins; subbasal line black defined on outer side by rufous, from costa to vein 1; antemedial line black defined on each side by rufous, oblique, excurved below costa and above inner margin and incurved between those points; orbicular black with rufous annulus, small, round; reniform rufous, elliptical; a

large oblique U-shaped black mark defined by rufous below end of cell; postmedial line formed of black spots and striz defined by rufous on inner side, slightly bent outwards below costa, oblique to vein 5, excurved to vein 3, then oblique and sinuous, another maculate black line beyond it except towards costa, confluent with the rufous subterminal band excurved at middle, and with some rufous points before it on costa; the veins of terminal area

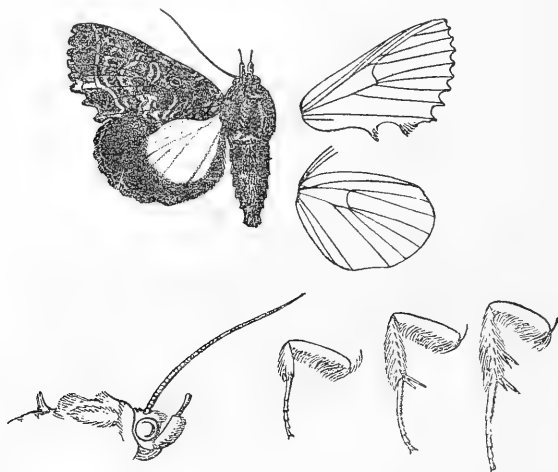


Fig. 114.—*Catephiodes meeci*, ♀. †.

streaked with black; a fine waved black terminal line; cilia with some rufous at base. Hind wing white, the inner margin and a terminal band black-brown, the latter expanding very broadly on apical area; the underside with the brown diffused along costa to near base.

Hab. BR. N. GUINEA, Aroa R. (*Meek*), type † ♀ in Coll. Rothschild. *Exp.* 56 millim.

Genus **ERCHEIA**.

Ercheia, Wlk. xiii. 1107 (1857) *Type.*
diversipennis.

Proboscis fully developed; palpi upturned, the 2nd joint reaching to vertex of head and rather broadly scaled, the 3rd long and somewhat dilated at extremity; frons smooth, with tuft of hair above; eyes large, round; antennæ of male ciliated; thorax clothed with hair and scales mixed and without crests; tibiæ moderately fringed with hair, the fore tibiæ not spined, the hind tibiæ spined; abdomen with large spreading crest on basal segment and some rough hair on two following segments. Fore wing with the apex rounded, the termen typically evenly curved and highly crenulate, the inner margin somewhat lobed before middle; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the cell half the length of wing; veins 3, 4 from angle; 5 fully developed from just above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

SECT. I. Fore wing with the termen oblique below vein 4, the inner margin strongly lobed at middle, then excised.

7609. *Ercheia cebea*.

Ercheia kebea, Beth.-Baker, Nov. Zool. xiii. p. 249 (1906).

♂. Head red-brown; thorax ochreous slightly mixed with brown, the tegulæ with black medial fascia with some red-brown on each side of it; fore tibiæ with black streak on inner side and point above; abdomen fuscous brown with large rufous crest at base, the ventral surface ochreous. Fore wing red-brown irrorated with a few black scales; the base of inner area ochreous with a whitish streak above and followed by some black and grey irroration, the scale-tooth fuscous; subbasal and antemedial lines absent; a black and white point at upper angle of cell; a slight fuscous medial spot in submedian fold; faint traces of a postmedial line

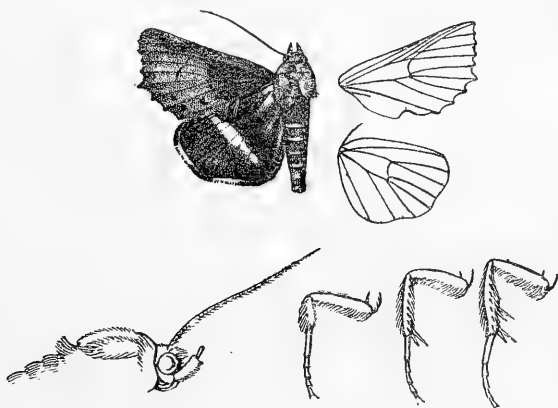


Fig. 115.—*Ercheia cebea*, ♂. 1.

excurred from costa to vein 2, then retraced and with obscure spots in submedian fold and on inner margin; some black suffusion on costal area towards apex with ochreous irroration on it; traces of a curved subterminal line with blackish spot in submedian fold; minute black points on the veins just before termen. Hind wing fuscous brown, darker towards termen; an oblique ochreous white postmedial band between discal and submedian folds; cilia white above and below middle. Underside of fore wing fuscous, the costa ochreous with some dark striation, the cell greyish, an oblique whitish postmedial band, the apical area greyish; hind wing with the basal half ochreous white with fuscous discoidal lunule and obliquely curved medial band, the terminal half fuscous with some whitish on termen and cilia above and below middle.

♀. Fore wing grey-brown with a purplish tinge, a black streak

in submedian fold to below end of cell with some dark suffusion below it.

Hab. BR. NEW GUINEA, Mt. Kebea (*Pratt*), type † ♂ in Coll. Bethune-Baker, Aroa R. (*Meek*), 1 ♀; QUEENSLAND, Kuranda (*Dodd*). *Exp.* 46 millim.

SECT. II. Fore wing with the termen evenly curved, the inner margin slightly lobed before middle.

- | | |
|---|-----------------------|
| A. Hind wing with white subterminal spot between veins 3 and 2. | |
| a. Hind wing with white band beyond the medial line. | |
| a ¹ . Fore wing ochreous suffused with red-brown, in female with prominent red-brown and black-brown streaks | <i>multilinea.</i> |
| b ¹ . Fore wing grey suffused with grey-brown | <i>diversipennis.</i> |
| b. Hind wing with white spots beyond lower angle of cell and at middle of vein 1. | |
| a ¹ . Fore wing ochreous, the inner and terminal areas suffused with purplish white | <i>ecceici.</i> |
| b ¹ . Fore wing ochreous thickly irrorated and striated with red-brown; female with the inner area pinkish brown | <i>pulchrivena.</i> |
| c ¹ . Fore wing reddish brown suffused with fuscous brown | <i>cyllaria.</i> |
| B. Hind wing without white subterminal spot between veins 3 and 2. | |
| a. Hind wing with white medial band | <i>quadriplaga.</i> |
| b. Hind wing with white spot beyond lower angle of cell. | |
| a ¹ . Hind wing with small white spot at middle of vein 1. | |
| a ² . Hind wing with the termen and cilia white below apex and at submedian interspace | <i>dubia.</i> |
| b ² . Hind wing with the termen and cilia not white below apex and at submedian interspace | <i>dipterygia.</i> |
| b ¹ . Hind wing without small white spot at middle of vein 1 | <i>styx.</i> |
| c. Hind wing without white spot beyond lower angle of cell. | |
| a ¹ . Hind wing with sinuous dark postmedial line faintly defined on outer side by whitish | <i>umbrosa.</i> |
| b ¹ . Hind wing without dark postmedial line defined on outer side by whitish | <i>subsignata.</i> |

7610. *Ercheia multilinea*. (Plate CCXVI. figs. 15 ♂, 16 ♀.)

Ercheia multilinea, Swinh. A. M. N. H. (7) ix. p. 84 (1902), ♀.

Ercheia abnormis, Swinh. A. M. N. H. (7) xiv. p. 424 (1904), ♂.

♂. Head and thorax dark reddish brown mixed with some ochreous; antennæ brown; palpi fuscous brown mixed with ochreous; abdomen ochreous suffused with brown; pectus, legs, and ventral surface of abdomen ochreous white. Fore wing pale ochreous tinged with rufous and irrorated with a few black scales, the inner area and terminal area below vein 5 suffused with dark red-brown; a faint sinuous red-brown antemedial line; a black point in middle of cell; reniform creamy white, ill-defined, with

traces of a sinuous brown line from it to inner margin; traces of a punctiform dark postmedial line with a slight red-brown shade beyond it from costa to vein 6; a small dark brown apical spot, followed by some dark points before termen, and a rather diffused dark line from vein 4 to inner margin. Hind wing fuscous brown, the costal area creamy white to beyond middle; an indistinct oblique sinuous dark postmedial line from below costa to inner margin, followed by a creamy white band interrupted at submedian fold and ending at vein 1; a small white subterminal spot between veins 3 and 2; cilia white towards apex and in submedian interspace. Underside pale ochreous; fore wing with oblique brown postmedial line, an oblique subterminal shade arising at vein 7, diffused to termen below vein 4 and ending at vein 2, a series of black points before termen; hind wing with oblique postmedial line arising at vein 6 and incurved beyond lower angle of cell, the subterminal area irrorated with brown from apex to vein 3, then with oblique blackish band to termen at vein 1, a series of black points before termen.

♀. Fore wing with dark streaks on the veins, two dark brown fasciæ in basal half of submedian interspace and a reddish brown fascia below vein 1, two dark brown fasciæ in end of cell, the reniform with dark brown centre and ochreous annulus, narrow, the terminal area with dark and red-brown streaks in the interspaces, the streaks towards apex darker and shortening to apex, a red-brown fascia extending to lower part of reniform, a dark streak above vein 2 extending to below end of cell and an ochreous white streak in submedian fold before a dark postmedial bar; underside of both wings with small dark discoidal spots.

Hab. PERAK, Goping (*Künstler*), 1 ♂, 2 ♀, type and type *abnormis*; SALANGA I. (*Müller*), 1 ♂; N. GUINEA. *Exp.*, ♂ 56, ♀ 66 millim.

7611. *Ercheia diversipennis*.

Ercheia diversipennis, Wlk. xiii. 1108 (1857); Moore, Lep. Ceyl. iii. p. 116, pl. 157. f. 1; Hmps. Moths Ind. ii. p. 451.

Melipotis ambidens, Feld. Reis. Nov. pl. 116. f. 9 (1874).

Ercheia zygia, Swinh. P. Z. S. 1885, p. 465; Waterh. Aid, ii. pl. 177. f. 3.

Ercheia zura, Swinh. P. Z. S. 1885, p. 465; Waterh. Aid, ii. pl. 177. f. 4.

♂. Head and thorax pale grey-brown mixed with dark brown, the tegulæ and upper edge of patagia with dark brown fasciæ; palpi with some black at sides; frons black at sides; abdomen pale grey-brown, the basal crest reddish; pectus and ventral surface of abdomen ochreous white, the legs tinged with brown. Fore wing pale grey-brown, the veins slightly streaked with blackish; a black streak in base of submedian fold, forking slightly before extremity; a diffused blackish fascia above inner margin from near base to middle: an oblique dark subbasal striga from costa; antemedial line slight, dark, angled outwards below costa, then incurved, and excurved below submedian fold; a minute black point in middle of cell; reniform with hardly

traceable dark outline, narrow; postmedial line black and very oblique from costa to vein 6, then obsolete to vein 2, in submedian interspace double with a black streak before it in the fold, acutely angled inwards at vein 1 and slightly above inner margin; the terminal area with black streaks above veins 6, 7, 8, shorter towards apex, an oblique streak from postmedial line at vein 2 to termen at vein 3 and slight streaks above extremities of veins 4 and 3; a series of minute black points before termen and indistinct double waved line from vein 2 to tornus; cilia intersected with black at the veins. Hind wing with the basal area grey-brown; a sinuous dark medial line followed by a creamy white band; the terminal area black-brown with a subterminal white spot between

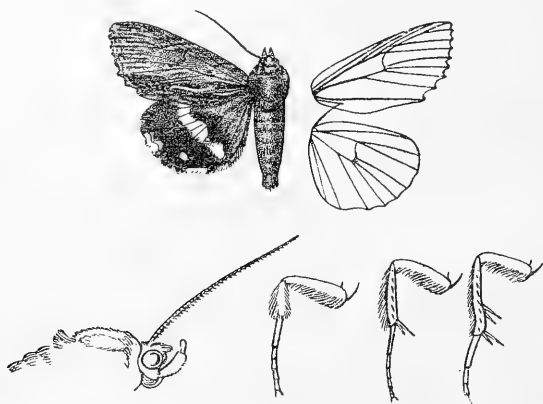


Fig. 116.—*Ercheia diversipennis*, ♂. $\frac{1}{2}$.

veins 3 and 2; the termen and cilia white between veins 7 and 4 and in submedian interspace and the cilia white towards tornus. Underside of both wings white, the costal and terminal areas irrorated with blackish; fore wing with strong oblique postmedial blackish line angled inwards at vein 1, subterminal shade from vein 7 to tornus, and series of black points before termen; hind wing with small discoidal spot, strong medial line waved and excurved to discal fold then sinuous, broad subterminal shade, and slight crenulate terminal line.

♀. Fore wing with the ground-colour pale ochreous suffused with grey-brown forming obscure streaks, the black streak in submedian fold continuous to the postmedial line.

Ab. 1. *zura*, ♂. Fore wing with the inner area suffused with dark brown to the streak in submedian fold and to above vein 2, the costal area with some dark suffusion towards apex.

Ab. 2. *zygia*, ♀. Fore wing with the costal area suffused with fuscous black from near base to near apex, extending at middle to submedian fold, the dark streaks on inner area and above vein 2

absent, a black spot on outer edge of the postmedial line in submedian fold.

Ab. 3. ♀. Fore wing with the basal area suffused with red-brown and black to the submedian fold, a similar patch on costal area between the postmedial and subterminal lines, and a small patch on termen between vein 3 and submedian fold, the streaks on inner area absent, a small elliptical brown spot edged with black below middle of submedian fold with a small round spot above the fold.

Hab. PUNJAB, Kulu, Sultanpur (*G. Young*), 1 ♀, Allahabad, 1 ♂, Jubbulpur (*R. Butler*), 1 ♀; BENGAL; BOMBAY (*Swinhoe*), 1 ♂ type *zura*, Poona (*Swinhoe*), 1 ♀ type *zygia*, Mhow (*Forsayeth*), 1 ♂, 1 ♀, Kanara (*Ward*), 1 ♀; MADRAS, Nilgiris (*Hampson*), 1 ♂, 1 ♀; TRAVANCORE, Pirmád (*Mrs. Imray*), 1 ♀; CEYLON, 1 ♀ type. *Exp.* 42-58 millim.

Larva. Forsayeth, Trans. Ent. Soc. 1884, p. 412.

Pale grey; ventral surface deep pink. Food-plant: grass; cocoon in a doubled-up leaf with a piece of grass attached.

*7612. *Ercheia eceicei*. (Plate CCXVI. fig. 17.)

Ercheia ekeikei, Beth.-Baker, Nov. Zool. xiii. p. 248 (1906).

♂. Head and thorax dark chocolate-brown mixed with grey; palpi with the 1st joint yellowish white, the 2nd joint whitish in front, the 3rd whitish ringed with fuscous; abdomen fuscous brown suffused with grey, the ventral surface yellowish white. Fore wing pale ochreous suffused with rufous and with purplish white on terminal half and slightly irrorated with black, the inner area to just above vein 1 fuscous suffused with purplish white; a black point at base defined by white; a curved red-brown subbasal line from costa to vein 1; antemedial line brown, oblique, waved; orbicular represented by a black point; reniform oblique, elliptical, whitish with white annulus; postmedial line indistinct, blackish, bent outwards below costa, excurved to vein 3, then oblique, waved, angled inwards on vein 1, crossed by a rufous fascia in submedian interspace with pale yellow streak on it before the line and another slight streak above its extremity; subterminal line white from costa to vein 5, then slight, purplish grey, curved and very slightly waved; a small black spot at apex, black points just before termen to vein 5, then a slight waved line; cilia pale rufous towards apex, then fuscous with a slight pale hue at base and some whitish towards tornus. Hind wing fuscous brown, the basal and inner areas greyish; postmedial white spots beyond lower angle of cell and above vein 1 and a subterminal spot above vein 2; cilia white below apex and in submedian interspace. Underside of fore wing ochreous white with oblique black postmedial band from just below costa to inner margin near tornus, its inner edge slightly indented at submedian fold, the terminal area fuscous except the apical area which is irrorated with fuscous,

a slight sinuous subterminal whitish line from costa to below vein 4 defined by fuscous on outer side, the area beyond it whiter with black points just before termen; hind wing ochreous white, the costal area irrorated with fuscous, a small black discoidal spot, postmedial line crenulate and excurved to vein 4, then oblique, sinuous, the terminal area suffused and irrorated with black with slight waved whitish subterminal line from costa to submedian fold expanding into a spot above vein 2, a fine waved black terminal line, cilia white mixed with fuscous at middle.

Hab. BR. N. GUINEA, Ekeikei (*Pratt*), type † ♂ in Coll. Bethune-Baker, Mt. Kebea. *Exp.* 5½ millim.

7613. *Ercheia pulchrivena*. (Plate CCXVII. fig. 1.)

Achæa pulchrivena, Wlk. Journ. Linn. Soc., Zool. vii. p. 182 (1864); Swinh. Cat. Het. Mus. Oxon. ii. p. 108.

♂. Head and thorax dark reddish brown mixed with grey; palpi grey irrorated with brown and with brown bands near base of 2nd joint and extremity of 3rd joint; pectus and legs brownish white, the latter irrorated with brown, the mid tibiæ with dark band towards extremity, the tarsi blackish ringed with white; abdomen dark brown, reddish brown at base, the ventral surface whitish, suffused with brown towards extremity. Fore wing ochreous whitish thickly irrorated and striated with red-brown, the postmedial area red-brown from costa to submedian fold; a curved subbasal black striga from costa with a small spot beyond it below the cell; antemedial line indistinctly double, blackish, angled outwards below costa, then incurved, excurved below vein 1; a black point in middle of cell; reniform slightly defined by blackish, narrow; traces of a medial line formed by black strigæ, oblique to below vein 4, then incurved; postmedial line black, oblique and sinuous to vein 6, excurved and slightly waved to vein 2, then bent inwards and waved to inner margin, a diffused black line beyond it from costa to vein 6; subterminal line white defined on outer side by small lunulate black marks, slightly excurved below vein 7 and at middle; a waved dark brown terminal line; cilia greyish brown. Hind wing dark brown; a small white spot beyond lower angle of cell and a subterminal white spot between veins 3 and 2; cilia with a white patch below apex. Underside white tinged with brown, the costal areas irrorated with brown; fore wing with dark fascia below the cell and vein 2 met by an oblique postmedial band from costa, a subterminal band from costa to submedian fold towards which it narrows, confluent in places with a narrow band before termen arising at vein 6; hind wing with dark discoidal lunule, strong waved postmedial line excurved to beyond lower angle of cell, then oblique, diffused subterminal band incurved between veins 4 and 2, narrow band before termen, and waved terminal line.

Ab. 1. Fore wing with white patch beyond the cell before the postmedial line connected by an oblique bar with the costa.

♀. Fore wing with the inner area pinkish brown.

Hab. SINGAPORE (*Ridley*), 2 ♂, 2 ♀; BORNEO, Sarawak (*Wallace*), type † ♂ in Mus. Oxon. *Exp.*, ♂ 52, ♀ 60 millim.

7614. *Ercheia cyllaria*.

Noctua cyllaria, Cram. Pap. Exot. iii. p. 100, pl. 251. ff. C, D (1782);

Moore, Lep. Ceyl. iii. p. 115, pl. 157. f. 3; Humpn. Moths Ind. ii. p. 451; id. Ill. Het. B.M. ix. p. 110, pl. 165. f. 20.

Achaea cyllota, Guen. Noet. iii. p. 248 (1852); Moore, Lep. Ceyl. iii. p. 115, pl. 157. f. 2.

Achaea fusifera, Wlk. xiv. 1398 (1858).

Achaea signivitta, Wlk. xiv. 1898 (1858).

Achaea polychroma, Wlk. xiv. 1400 (1858).

Achaea atrivitta, Wlk. Journ. Linn. Soc., Zool. vii. p. 181 (1864).

Achaea purpureilinea, Wlk. Journ. Linn. Soc., Zool. vii. p. 181 (1864).

Achaea semipallida, Wlk. Journ. Linn. Soc., Zool. vii. p. 181 (1864).

Ercheia tenebrosa, Moore, P. Z. S. 1867, p. 66.

Melipotis gundiana, Feld. Reis. Nov. pl. 116. f. 10 (1874).

Melipotis costipannosa, Moore, Lep. Atk. p. 166, pl. 5. f. 8 (1882).

Ercheia pannosa, Moore, P. Z. S. 1883, p. 24.

Ercheia uniformis, Moore, P. Z. S. 1883, p. 24.

Melipotis collustrans, Lucas, P. Linn. Soc. N. S. W. (2) viii. p. 146 (1894).

♂. Head and thorax black-brown mixed with some reddish brown and grey; abdomen fuscous brown with slight pale segmental lines; pectus and ventral surface of abdomen whitish, the legs suffused with brown, the tarsi blackish with pale rings. Fore wing reddish brown suffused with fuscous brown and slightly irrorated with black; an oblique black subbasal striga from costa; antemedial line slight, black, angled outwards below costa, then incurved, and excurved below submedian fold; reniform very faintly defined by black scales and white points above and below; traces of a medial black line excurved beyond the cell, then oblique and waved; postmedial line indistinctly double, black, oblique and sinuous to vein 6, faint and excurved to vein 3, then inwardly oblique and waved, black streaks beyond it above and below vein 7; small subterminal black spots above and below vein 8, then traces of a pale waved line with slight blackish points at the interspaces; a slight crenulate black terminal line. Hind wing black-brown; postmedial white spots beyond lower angle of cell and above vein 1 and a subterminal spot between veins 3 and 2; the termen and cilia white between veins 7 and 4 and in submedian interspace. Underside of both wings white tinged with brown, the costal and terminal areas irrorated with blackish; fore wing with oblique blackish postmedial band narrowing to costa and inner margin, a broad subterminal band from below costa to submedian fold, and series of points before termen; hind wing with black discoidal spot, strong postmedial line excurved and waved to discal fold, then sinuous, and oblique band from vein 3 to tornus.

♀. Fore wing with the dark suffusion tending to form streaks on inner and terminal areas.

Ab. 1. Similar but fore wing with a diffused black streak in submedian fold from base to termen.

Ab. 2. *uniformis*. Fore wing more uniform brown, without the black streaks on inner area, above vein 2 and on apical area; a small black annulus below end of cell.

Ab. 3. *signivitta*. Similar but fore wing with a diffused dark fascia in submedian interspace from base to termen, the reniform sometimes filled in with black.

Ab. 4. *semipallida*. Similar but fore wing whitish tinged with brown except the inner area and a patch on apical part of costal area.

Ab. 5. *cyllota*. Similar but fore wing with the basal area to submedian fold and the postmedial costal area black-brown.

Ab. 6. Similar but fore wing with a diffused dark fascia in submedian fold from base to termen, the reniform filled in with black.

Ab. 7. Similar but fore wing with the whole inner area and the termen to vein 5 suffused with brown, the reniform not filled in with black.

Ab. 8. *fusifera*. Fore wing suffused with black-brown leaving the inner and terminal areas pale tinged and irrorated with red-brown.

Hab. PUNJAB (*James, Horne*), 2 ♂, 1 ♀; SIKHIM, 3 ♀; ASSAM, Dibrugrah (*Ward*), 1 ♀; BOMBAY, 1 ♂, 1 ♀; MADRAS, Malabar, 4 ♂, 6 ♀, types *uniformis* and *pannosa*, Nilgiris (*Hampson*), 1 ♂, 4 ♀; TRAVANCORE, Trivandrum (*Ferguson*), 1 ♀; CEYLON (*Wenham, Templeton, Layard*), 3 ♂, 5 ♀, types *signivitta* and *fusifera*; BURMA, Moulmein (*Clerke*), 1 ♀; ANDAMANS, 1 ♀; PERAK, Larut Hills (*Flower*), 1 ♂, Gopong (*Künstler*), 1 ♀; SINGAPORE (*Ridley*), 2 ♂, 2 ♀; BORNEO, Sarawak (*Wallace, Everett*), 3 ♂ type *polychroma* and type † ♂ *semipallida* in Mus. Oxon., Santubong, 1 ♂, Sandakan (*Priyer*), 1 ♀; LITTLE KÉ I., 1 ♀; QUEENSLAND. *Exp.* 46-60 millim.

*7615. *Ercheia quadriplaga*. (Plate CCXVII. fig. 2.)

Achæa quadriplaga, Wlk. xxxiii. 961 (1865); Swinh. Cat. Het. Mus. Oxon. ii. p. 108.

♀. Head and thorax greyish mixed with some brown; tarsi blackish ringed with white; abdomen grey tinged with brown. Fore wing greyish tinged and slightly irrorated with red-brown, the terminal area suffused with red-brown; the basal area black-brown from costa to submedian fold; antemedial line black, angled outwards below costa and in submedian fold; traces of a dark medial line, oblique to submedian fold where it is slightly angled outwards; reniform hardly traceable, with faint pale annulus and whitish points at upper and lower extremities; postmedial line

blackish, oblique and sinuous to below vein 7, then faint and slightly waved, excurved to vein 3, then incurved, a wedge-shaped black-brown patch beyond it on costal area extending to apex, with some white points on costa; subterminal line faint, pale, curved and slightly waved; a fine waved dark terminal line. Hind wing with the basal area pale brown; an oblique sinuous fuscous medial line followed by a white band; the terminal area fuscous brown; termen narrowly white towards apex; cilia white, brown at middle. Underside of fore wing with the basal half white, the terminal half brown, an oblique white postmedial band narrowing on inner area, its outer edge excurved below costa, some white suffusion on terminal area except towards tornus, and a series of blackish points before termen; hind wing white, a slight dark discoidal spot, narrow oblique sinuous medial band, the terminal area brown with faint slightly waved whitish subterminal line, some white on termen towards apex and below vein 2, and a series of dark points before termen.

Hab. CELEBES (*Wallace*), type ♂ ♀ in Mus. Oxon. *Eap.* 44 millim.

7616. *Ercheia dubia*. (Plate CCXVII. fig. 3.)

Catephia dubia, Butl. Cist. Ent. i. p. 292 (1874); Semper, Reis. Phil., Schmett. ii. p. 540, pl. 60. f. 13.

Ercheia charon, Butl. P.Z. S. 1880, p. 678.

Ercheia certa, Beth.-Baker, Nov. Zool. xiii. p. 248 (1906).

Head and thorax red-brown slightly mixed with grey; antennæ blackish; palpi with dark bands near base and extremities of 2nd and 3rd joints; pectus and legs ochreous white tinged with brown, the tarsi banded with blackish; abdomen fuscous, the base red-brown, slight whitish segmental lines, the ventral surface ochreous white with subventral series of blackish spots except towards base. Fore wing grey-brown or red-brown; the basal area black-brown to the submedian fold; a black subbasal line slightly defined on outer side by ochreous from costa to submedian fold, angled outwards below costa; antemedial line black with ochreous striga at costa, angled outwards below costa, incurved at vein 1, then excurved; a black point in middle of cell; reniform very faintly defined by brown, constricted at middle, its lower part with white points on inner and outer sides; a slight waved black medial line arising at vein 5 well beyond the cell, oblique to a small black annulus at middle of submedian fold, then erect; postmedial line black, indistinctly double except between veins 6 and 5, slightly defined on each side by white towards costa and inner margin, oblique and sinuous to vein 6, excurved to vein 3, then oblique and waved below submedian fold; a semi-circular dark brown patch on postmedial part of costa with some pale points on costa and diffused black streaks above and below vein 7; subterminal line slight, pale, bluish white on costal area, with two small blackish spots on its outer side below costa, then faintly

defined by dark brown and slightly waved below vein 3; a crenulate black terminal line with pale points beyond it at the interspaces. Hind wing fuscous brown; a round white spot beyond lower angle of cell with minute spot below it at vein 1; the termen and cilia white from below apex to below vein 5 and at submedian fold. Underside fuscous, the basal area ochreous white; fore wing with oblique white postmedial band, narrowing below vein 3, the terminal area suffused with ochreous white from apex to vein 3; hind wing with black discoidal spot, narrow medial band oblique to discal fold then incurved, its outer edge slightly waved, traces of a white subterminal line, a waved black terminal line with some white before it from below vein 7 to below vein 5.

Ab. 1. Fore wing with black patch below end of cell.

Ab. 2. Fore wing with the basal area not black-brown.

Ab. 3. Similar, but fore wing with diffused white patch on inner area between the ante- and postmedial lines.

Ab. 4. *charon*. Fore wing more uniform fuscous brown without the dark postmedial patch on costal area.

Ab. 5. *certa*. Similar, but fore wing with the inner area and streaks in the interspaces of postmedial half reddish brown.

Ab. 6. Fore wing suffused with black-brown leaving the inner and terminal areas reddish brown.

Hab. FORMOSA, Takow (*Hobson*), 2 ♀ type *charon*; TIMOR LAUT, Larut (*Forbes*), 1 ♂; KÉ IS., 1 ♂, 1 ♀; DUTCH N. GUINEA, Kapaur (*Doherty*), 1 ♂; BR. N. GUINEA, Avola (*Pratt*), 1 ♂, Ekeikei (*Pratt*), 1 ♂, 1 ♀, Mt. Kebca (*Pratt*), 1 ♀; NEW GEORGIA (*Meek*), 1 ♂; N. AUSTRALIA, Port Darwin (*Buckland*), 1 ♀; QUEENSLAND, Rockhampton, 3 ♂ type. *Exp.* 44–54 millim.

7617. *Ercheia dipterygia*, n. sp. (Plate CCXVII. fig. 4.)

♂. Head and thorax dark brown slightly mixed with greyish; palpi pale at tips; pectus and legs ochreous white, the fore and mid legs suffused with brown, the tarsi ringed with whitish; abdomen grey-brown, the basal crest dark brown, the ventral surface ochreous white except at extremity. Fore wing fuscous brown with a patch of bluish white suffusion on inner area between the antemedial and subterminal lines; an indistinct dark subbasal line, excurved below costa and ending at submedian fold; antemedial line indistinct, dark, angled outwards below costa, incurved to vein 1, then excurved; a minute blackish point in middle of cell; reniform very faintly defined and with white points at its upper and lower extremities; faint traces of a waved dark medial line excurved beyond the cell, then oblique, a slight blackish annulus before it in submedian interspace; postmedial line blackish, defined on outer side by ochreous towards costa, minutely waved, oblique to vein 6, excurved to vein 3, then oblique and more strongly waved below vein 2, some ochreous points beyond it on costa; subterminal line very indistinct, pale, waved; a series of

faint blackish points just before termen. Hind wing fuscous brown; a diffused oblique whitish medial bar between veins 5 and 2 and small spot at vein 1; cilia chequered with whitish between veins 7 and 4. Underside with the basal half white, the terminal half fuscous brown; fore wing with the basal costal area irrorated with brown, a dark fascia below the cell, an oblique dark medial band followed by a white band; hind wing with black discoidal point, oblique sinuous medial line, and faint oblique whitish subterminal mark between veins 3 and 2.

Hab. ANDAMANS, 1 ♂ type. *Exp.* 44 millim.

*7618. *Ercheia styx*. (Plate CCXVII. fig. 5.)

Ercheia styx, Beth.-Baker, Nov. Zool. xiii. p. 248 (1906).

♂. Head and thorax deep red-brown mixed with black and some grey; palpi with pale bands; shoulders and outer edge of tegulae with whitish stripe; pectus and legs whitish tinged with brown; abdomen greyish fuscous, the basal crest rufous, the ventral surface ochreous white. Fore wing greyish suffused with red-brown and slightly irrorated with black, a somewhat paler fascia from base through the cell to termen; a white point at base; subbasal line represented by a black point below costa; the ante-medial area with slight blackish streaks in submedian fold and below vein 1; antemedial line represented by two oblique black striae from costa, two black points in cell, and two striae on inner area, a short black streak beyond it in cell; traces of a small elliptical reniform faintly defined by brown and with two whitish points on its outer edge; the medial area with small black-defined diamond-shaped mark in submedian fold followed by a short white streak and with oblique dark bar to inner margin; postmedial line slight, dark, and somewhat dentate, oblique from costa to vein 4, then inwardly oblique to submedian fold, then more distinct, waved and angled inwards on vein 1, some blackish points beyond it to vein 4, then a waved line diffused on inner side; subterminal line whitish slightly defined by brown on inner side, somewhat excurved to vein 4, then oblique and slightly excurved at vein 1; the terminal area with slight dark streaks in the interspaces and whitish spot below vein 4; a fine waved black terminal line. Hind wing greyish fuscous with whitish spot beyond lower angle of cell; cilia white, fuscous at middle and apex. Underside of fore wing fuscous with whitish postmedial band expanding towards costa, the base and apex pale, a slight waved whitish subterminal line from costa to vein 5; hind wing with the base ochreous white followed by a diffused oblique blackish line, then a white band, the terminal area fuscous.

Hab. BR. N. GUINEA, Ekeikei (*Pratt*), type † in Coll. Bethune-Baker. *Exp.* 46 millim.

7619. *Ercheia umbrosa*. (Plate CCXVII. fig. 6.)

Ercheia umbrosa, Butl. Trans. Ent. Soc. 1831, p. 194.

Ercheia strigipennis, Moore, Lep. Atk. p. 165 (1882); Hmps. Moths Ind. ii. p. 452.

Head and thorax pale red-brown mixed with dark brown, the tegulæ with two dark brown stripes; palpi with some grey at base and extremity of 2nd joint, the 3rd joint banded grey and fuscous; pectus brownish white; tarsi fuscous with pale rings; abdomen grey-brown, the basal crest red-brown, the ventral surface brownish white. Fore wing fuscous brown, the inner area to above vein 1 and the terminal area to above vein 3 red-brown; minute subbasal black spots below costa and median nervure; antemedial line indistinct, black, angled outwards below costa, incurved and waved to vein 1, then excurved; a black point defined by some rufous scales in middle of cell; reniform very faintly indicated by some rufous scales and with white points at its upper and lower extremities; postmedial line black, oblique and sinuous to vein 6, then waved, excurved to below vein 3, then incurved and angled inwards at vein 1, black bars beyond it above vein 2 and in submedian fold; subterminal line whitish, almost obsolete except towards costa and below vein 3, with a black streak beyond it above vein 8, crossed by a black streak below vein 8 and with black streak before it extending to near postmedial line above vein 6, below vein 3 waved, with a black mark beyond it above vein 2 and black marks before and beyond it in submedian interspace; a waved black terminal line; cilia intersected by pale streaks below apex and vein 4 and pale at tornus. Hind wing fuscous brown; an indistinct sinuous dark postmedial line faintly defined on outer side by whitish; cilia chequered with whitish to vein 4, then with fine pale line at base and whitish tips towards tornus. Underside whitish tinged with brown; fore wing with oblique fuscous band followed by a whitish band narrowing to inner margin, the terminal area fuscous with traces of a pale waved subterminal line, and with terminal pale patches at apex, between veins 4 and 3, and at tornus; hind wing with blackish discoidal spot, medial line waved and excurved to vein 5, then bent inwards to lower angle of cell and oblique to inner margin near tornus, a broad postmedial band, narrow subterminal band, and waved terminal line.

Ab. 1. Fore wing with the inner and terminal areas not red-brown, the terminal half with slight pale streaks in the interspaces.

Ab. 2. Similar, but fore wing greyer brown with a diffused black fascia in submedian interspace and short white streak in submedian fold before the postmedial line.

Ab. 3. Fore wing with prominent ochreous white and reddish brown streaks in the interspaces, some white suffusion on inner

margin before middle, on each side of the postmedial line, and before the subterminal line.

Hab. JAPAN, Tokio (*Maries*), 1 ♀ type, Yokohama (*Pryer*), 1 ♀, Gifu (*Pryer*), 1 ♂, 1 ♀; CENTR. CHINA, Ichang (*Mrs. Pratt*), 1 ♂; W. CHINA, Chia-kou-ho (*Pratt*), 1 ♂, 2 ♀, Washan (*Pratt*), 1 ♀, Kwei-chou, 1 ♀, Ta-chien-lu (*Pratt*), 1 ♀; SIKHIM, 1 ♀ type *strigipennis*. *Exp.* 44-60 millim.

7620. *Ercheia subsignata*.

Achæa subsignata, Wlk. xxxiii. 959 (1865); Holl. *Psyche*, vii. pl. ii. f. 9.

Melipotis mahagonica, Saalm. Lep. Madag. p. 442, f. 184 (1901).

Ercheia periploca, Holl. *Psyche*, vii. p. 68, pl. ii. f. 8 (1894).

Head and thorax red-brown; palpi banded pale and dark brown; legs reddish and dark brown; abdomen grey-brown, the ventral surface pale brown. Fore wing fuscous brown mottled with pale red-brown, the inner and terminal areas red-brown; a sinuous black subbasal line from costa to submedian fold; antemedial line black, slightly angled outwards below costa, incurved to vein 1, then excurved and obsolescent; a black point in middle of cell; reniform pale reddish faintly defined by blackish and with white points at its upper and lower extremities; postmedial line double, black, slightly sinuous towards costa and waved below submedian fold, excurved from costa to vein 3, then oblique; subterminal line indistinct, pale, waved, with slight black marks beyond it below apex, black streaks before it above and below vein 7, and black bars on its outer side below vein 3 and in submedian interspace; the termen with dark patches at discal fold and between veins 3 and 2; a slight waved dark terminal line with black points at the interspaces; cilia fuscous and reddish brown. Hind wing fuscous brown; the termen and cilia white from below apex to below vein 5, and the cilia whitish in submedian interspace. Underside of fore wing grey-brown, the costa and termen to vein 3 pale irrorated with brown, an oblique white postmedial band, traces of a pale waved subterminal line, and a series of black points before termen; hind wing whitish suffused and irrorated with black-brown, a blackish discoidal spot, oblique sinuous postmedial line, broad dark subterminal shade with a waved whitish line on it, and a waved black terminal line.

Ab. 1. Fore wing more uniform fuscous brown.

Ab. 2. *periploca*. Fore wing fuscous brown with the inner and terminal areas grey-brown, a diffused blackish fascia in submedian interspace.

Ab. 3. Fore wing with black spots in submedian interspace before the antemedial and medial lines and beyond the postmedial line.

Ab. 4. Fore wing with the medial area grey to the annulus below end of cell and submedian fold, the basal and inner areas darker.

Ab. 5. Fore wing with the medial area variegated with white.

Ab. 6. Fore wing with leaden grey suffusion in and below end of cell and beyond lower angle of cell.

Hab. SIERRA LEONE (*Foxcroft*), 1 ♀ type; GOLD COAST, Cape Coast Castle (*Higlett*), 11 ♂, 5 ♀, Aburi, Acrapong Mts. (*Sir J. Carter*), 2 ♀; S. NIGERIA, Old Calabar (*Crompton*), 3 ♂, Ilesha (*Humfrey*), 1 ♂, 1 ♀. *Exp.* 40-56 millim.

Genus **ACHÆA.**

	Type.
<i>Achæa</i> , Hübn. Verz. p. 269 (1827)	<i>melicerte</i> .
<i>Geria</i> , Wlk. xiv. 1366 (1858)	<i>ablinaris</i> .

Proboscis fully developed; palpi upturned, the 2nd joint reaching to about vertex of head and moderately scaled, the 3rd moderate or long; frons smooth; eyes large, round; antennæ of male typically ciliated; thorax clothed with hair and hair-like scales and without crests; fore and hind tibiæ fringed with long hair, the fore tibiæ not spined, the mid and hind tibiæ spined; abdomen with dorsal ridges of hair on basal segments. Fore wing with the costa highly arched towards apex which is somewhat produced, the termen evenly curved and crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the cell about one-third length of wing; veins 3, 4 from angle; 5 fully developed from just above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

SECT. I. Antennæ of male bipectinate with long branches, the apex simple; femora and tibiæ tufted with scales and hair; palpi with the 2nd and 3rd joints long.

*7621. *Achæa pectinicornis*.

Ophiusa pectinicornis, Beth.-Baker, A. M. N. H. (8) iii. p. 432 (1909).

♂. Head and thorax reddish brown mixed with some yellowish white; palpi blackish at base and above; frons with black bar above; abdomen dorsally grey suffused with brown, ventrally reddish ochreous irrorated with brown. Fore wing brownish ochreous tinged with rufous, striated with brown and irrorated with black; a blackish subbasal band from costa to submedian fold, its outer edge indented at median nervure; an oblique irregularly sinuous blackish antemedial band, excurved at median nervure; a black point in middle of cell; reniform rufous defined by blackish, narrow, constricted at middle; postmedial line very oblique from costa to vein 6, double between veins 7 and 6, some whitish beyond it at costa and rufous before and beyond it below vein 7, bent inwards at vein 6, then erect and with another line before it from lower angle of cell to inner margin angled outwards at vein 1; two white points beyond it on costa; an oblique dark shade from apex to vein 6 with some bluish white on it below costa and an oblique subterminal series of small dark spots from it to inner margin, towards which they are more distinct; the terminal area with a brown shade before middle; a series of black

striae just before termen; cilia fuscous, ochreous at base. Hind wing fuscous brown, the base and costal area to beyond middle whitish; some whitish on termen towards tornus; a dark terminal line except towards apex; cilia ochreous white tinged with rufous. Underside white irrorated with black; fore wing with discoidal striga, postmedial point in discal fold and fuscous patch between

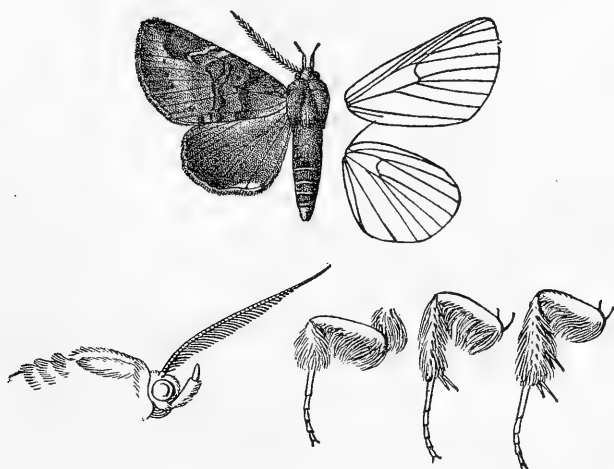


Fig. 117.—*Achæa pectinicornis*, ♂. ♀.

veins 5 and 2; hind wing with discoidal point, postmedial series of points, and fine crenulate terminal line with points at the veins.

Hab. CONGO FREE STATE, Mekala Distr. (*Powell-Cotton*), type ♀ ♂ in Coll. *Powell-Cotton*. *Exp.* 48 millim.

SECT. II. Antennæ of male ciliated.

A. Mid tibiæ of male dilated, with a groove containing a tuft of long hair, the 1st joint of mid and hind tarsi fringed with long hair above.

a. Antennæ of male with the basal half of shaft fringed with hair above.

7622. *Achæa nubifera*.

Achæa nubifera, Moore, P. Z. S. 1877, p. 609, pl. 59. f. 9; Hmps. Moths Ind. ii. p. 495.

♂. Head and thorax greyish brown; pectus and legs white tinged with fulvous yellow, the tibiæ and tarsi grey-brown; abdomen grey-brown. Fore wing grey-brown, the terminal half suffused with fuscous black; antemedial line fuscous, somewhat diffused, erect, waved; traces of a sinuous medial line defining the dark area; traces of a curved waved postmedial line; cilia grey-brown with a whitish line at base. Hind wing deep fuscous

brown; a narrow curved whitish medial band from below costa to vein 1; a whitish spot on termen at discal fold; cilia grey-brown with a fine whitish line at base. Underside grey-brown; fore wing with the costal area and postmedial area except towards inner

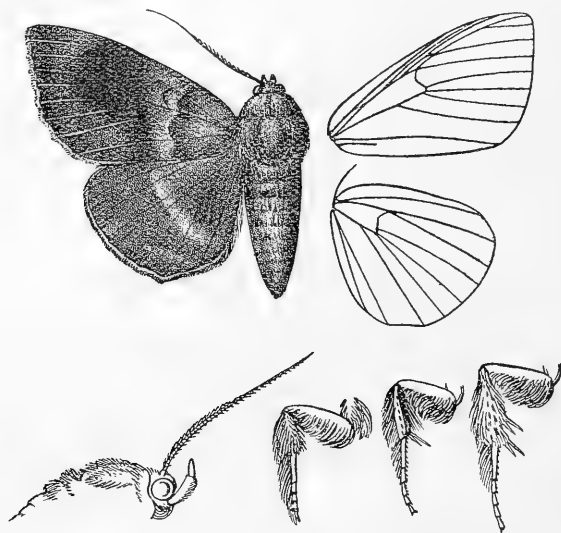


Fig. 118.—*Achæa nubifera*, ♂. ½.

margin suffused with fuscous black, a discoidal striga and indistinct wavy postmedial and subterminal lines; hind wing with curved medial and postmedial lines, the latter with some blackish suffusion before it.

Hab. ANDAMANS, 2 ♂ type. *Exp.* 70 millim.

b. Antennæ of male normal.

7623. *Achæa eusciasta*, n. sp.

♂. Head and thorax dark red-brown tinged with purplish grey; palpi, pectus, and legs grey-brown, the tuft of hair in mid tibiæ ochreous; abdomen dark grey-brown. Fore wing dark red-brown tinged with purplish grey; the apical part of costal area rather greyer; antemedial line indistinct, dark, oblique, wavy; a black point in middle of cell and some black scales on discocellulars; medial line very indistinct, double, dark, minutely wavy, excurved beyond the cell, then incurved; postmedial line indistinct, dark, wavy, slightly defined on outer side by blue-white from vein 3 to inner margin, excurved to vein 4, then incurved; subterminal line indistinct, dark, rather diffused, almost obsolete on costal area; cilia with a fine pale line at base. Hind wing dark fuscous brown;

an oblique blue-white postmedial bar between veins 5 and 2; a slight ochreous white spot at apex, more prominent terminal spot at discal fold, and oblique bar in submedian interspace; cilia whitish at the terminal spot. Underside grey-brown largely suffused with fuscous; fore wing with blackish discoidal bar with

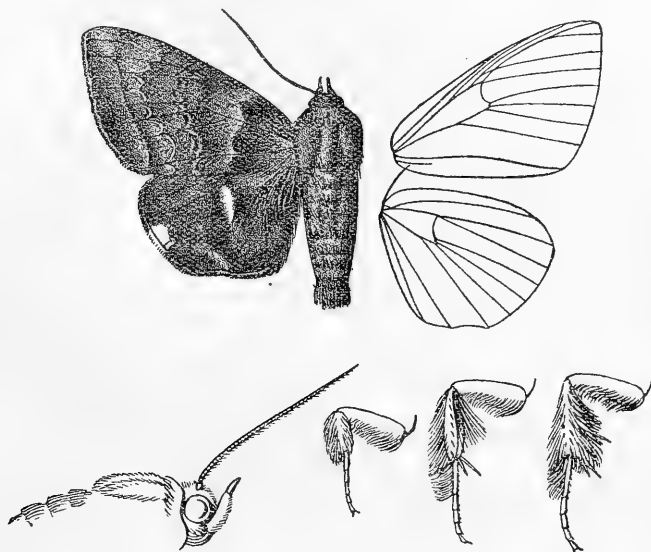


Fig. 119.—*Achæa euscista*, ♂. ♀.

some ochreous white beyond it, a large diffused blackish patch at middle of terminal area; hind wing with blackish discoidal point and postmedial and subterminal lines, the last with dark suffusion before it.

Hab. SINGAPORE (Ridley), 1 ♂ type. *Exp.* 74 millim.

- B. Mid tibiæ of male dilated, with a groove containing a tuft of long hair, the 1st joint of mid tarsi not fringed with hair, the 1st joint of hind tarsi fringed with hair above.
- a. Thorax of male, two basal segments of abdomen, base of inner margin of fore wing, and base of hind wing with tufts of rough hair.

7624. *Achæa illustrata*.

Achæa illustrata, Wlk. xiv. 1392 (1858).

♂. Head, thorax, and abdomen greyish brown, the rough hair on thorax and abdomen rufous; pectus, legs, and ventral surface of abdomen irrorated with grey, the tarsi tinged with ochreous. Fore wing grey-brown tinged with violaceous except on terminal area and with some pale ochreous on basal inner area; a small

tuft of white scales below base of cell; a curved dark subbasal striga from costa; antemedial line blackish, oblique, straight; reniform defined by blackish, very narrow; a slight dark waved medial line excurved beyond the cell, then incurved; postmedial line blackish, dentate, oblique to vein 6 with a white patch beyond it irrorated with rufous and traversed by slight dark streaks on the veins and by the double dentate red-brown subterminal line, the postmedial line incurved below vein 4 and strongly incurved in submedian interspace where there is a white spot beyond it followed by a dentate yellowish white line with minute white spots above and below its extremities, a dark shade beyond the postmedial



Fig. 120.—*Achæa illustrata*, ♂. $\frac{1}{2}$.

line; a faint waved dark line just before termen with minute white points at the interspaces. Hind wing grey-brown, the terminal half fuscous except towards tornus; a white spot at apex and the termen and cilia white between veins 7 and 4. Underside grey irrorated with brown: fore wing with the terminal area suffused with fuscous, a dark discoidal bar, postmedial line oblique below vein 6 and incurved at submedian fold, a white patch beyond it on costal area tinged with rufous and with slight dentate rufous marks on it, and a diffused white patch on inner area; hind wing with dark discoidal point, postmedial line incurved below discal fold, and faint maculate whitish subterminal line.

Hab. SIERRA LEONE (*Morgan, Clements*), 3 ♂ type. *Exp.* 70–72 millim.

- ♂. Thorax of male, the two basal segments of abdomen, and the base of inner margin of fore wing, but not the base of hind wing, with tufts of rough hair.

7625. *Achæa dasybasis*, n. sp.

Head and thorax whitish suffused with rufous; antennæ, palpi, pectus, and legs grey-brown; abdomen pale grey-brown, the base of dorsum whitish tinged with rufous. Fore wing pale grey-brown with a slight rufous gloss and some dark irroration, the inner area pale rufous at base and with a cupreous gloss towards tornus; a small tuft of white scales below base of cell; a slight dark subbasal line from costa to median nervure; antemedial line slight, dark, oblique,

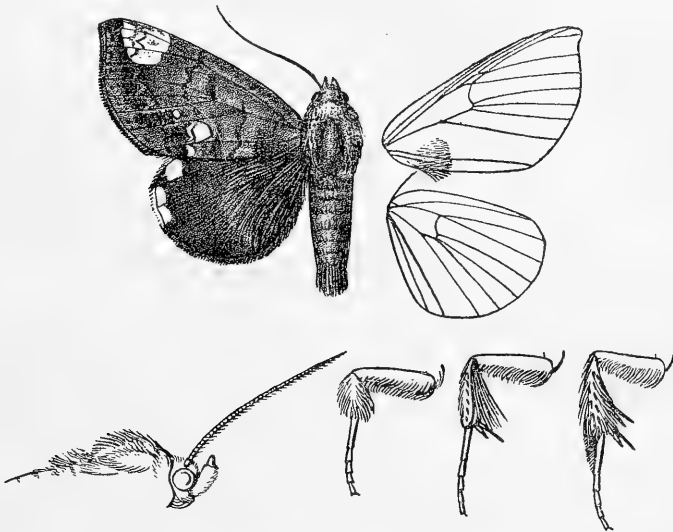


Fig. 121.—*Achæa dasybasis*, ♂ ♀.

sinuous; a small dark spot in middle of cell and discoidal spot; a faint slightly waved dark medial line, incurved below vein 5; postmedial line dark, waved, oblique to vein 6, and with a white patch beyond it irrorated with brown, traversed by slight dark streaks on the veins and by the dentate subterminal line double towards costa where it forms a dark mark with two white points on it, the postmedial line oblique from vein 6 to 3, then incurved, strongly in submedian interspace where there is a white spot beyond it followed by a waved white line with small white spots above and below its extremities; a series of slight black lunules just before termen. Hind wing grey-brown, the terminal area fuscous except towards termen; a white spot at apex, and the termen and cilia white between veins 7 and 4. Underside grey

irrorated with brown; fore wing with white band with sinuous edges from below middle of costa to tornus, with an oblique dark discoidal striga on it, the postmedial patch as above; hind wing with curved postmedial line and indistinct waved subterminal line with slight whitish spots beyond it.

Hab. GERM. E. AFRICA, Itumba, Kongwa (*Wood*), 1 ♀; N.E. RHODESIA, Loangwa R. (*Neave*), 1 ♂ type. *Exp.* 70 millim.

- c. Hind wing of male with a minute corneous hook at base of median nervure on underside and minute corneous plate below costa (?) acted on by spines of the dilated mid tibiæ, the males making a sound like a grasshopper during flight.

7626. *Achæa mormoides*.

Achæa mormoides, Wlk. xiv. 1393 (1858).

Achæa mania, Feld. Reis. Nov. pl. 116. f. 16 (1874).

Head, thorax, and abdomen grey-brown; tarsi with slight pale segmental rings. Fore wing grey-brown, the basal and postmedial areas somewhat darker, the medial area irrorated with blackish; a slight sinuous blackish subbasal line from costa to submedian

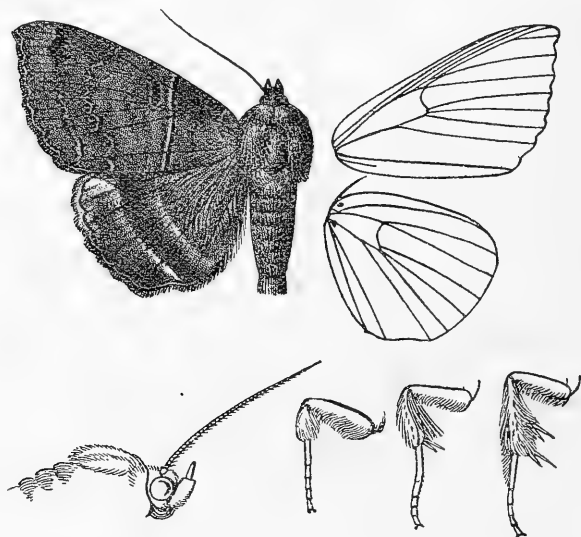


Fig. 122.—*Achæa mormoides*, ♂. 1.

fold; antemedial line indistinctly double, inwardly oblique, straight; a minute black spot at upper angle of cell and larger spot at lower angle connected by two striæ; medial line slight, blackish, minutely waved, excurved beyond the cell, then incurved; postmedial line blackish, minutely dentate, oblique to vein 6 and incurved below

vein 4, some minute whitish points beyond it on costa; subterminal line blackish, somewhat diffused on inner side, arising from apex, incurved below apex, double and filled in greyish below vein 5; a series of black points just before termen; cilia with a fine grey line at base. Hind wing black-brown; an obliquely curved medial line slightly defined on outer side by greyish; a pure white apical patch extending to vein 4, its inner edge angled outwards at vein 6; an oblique whitish subterminal line from vein 3 to termen at vein 1; a blackish terminal line and greyish lines at base and near tips of cilia on the dark area. Underside grey-brown with dark suffusion before the subterminal line, the terminal areas grey; fore wing with dark discoidal spot, curved postmedial line, and slightly sinuous subterminal line with some dark suffusion beyond it on inner half; hind wing with dark discoidal striga, curved medial line, and minutely waved postmedial and subterminal lines.

Hab. GOLD COAST, Bibianaha (*Spurrell*), 1 ♂; S. NIGERIA, Lagos (*Strachan*), 1 ♀, Ebute Meta (*Boag*), 1 ♀, Old Calabar (*Cockburn*, *Crompton*, *Sampson*), 2 ♂, 5 ♀, Sapele (*Sampson*), 1 ♂, Ilesha (*Humfrey*), 1 ♂, 3 ♀; NATAL, Durban (*Gueinzins*, *Gooch*, *Leigh*, *Clark*), 5 ♂, 1 ♀ type. *Exp.* 64-76 millim.

Larva. Dark brown mottled with pale reddish; traces of a pale dorsal line defined by dark brown except on the five anterior somites, slightly expanding at middle of somites; 4th somite with a redder subdorsal patch; traces of reddish lateral and stigmatal lines except on the five anterior somites; stigmata ochreous defined by dark brown; 11th somite with a pair of dorsal prominences behind; head ochreous mottled with red.

d. Thorax and wings of male normal.

a¹. Hind wing with yellow apical patch.

a². Fore wing with double nearly straight line beyond the antemedial line..... *præstans*.

b². Fore wing with single waved line beyond the antemedial line.

a³. Fore wing with the medial area suffused with blue-white *poliopasta*.

b³. Fore wing with the medial area not suffused with blue-white *radama*.

c². Fore wing without line beyond the antemedial line.

a³. Fore wing with the basal area and a post-medial patch on costal area deep chocolate-brown *intercisa*.

b³. Fore wing with the basal area and postmedial costal area not chocolate-brown.

a⁴. Fore wing with conical postmedial white patch on costal area *chrysopera*.

b⁴. Fore wing without conical postmedial white patch on costal area.

a⁵. Hind wing with the yellow patch on apical half of termen broad *dejeani*.

b⁵. Hind wing with the yellow patch on apical part of termen much narrower.

a⁶. Fore wing with the ante- and post-medial lines waved *cæa*.

- b*⁶. Fore wing with the ante- and post-medial lines nearly straight and oblique *balteata*.
*b*¹. Hind wing with yellow spots at apex and on termen at discal fold *catocaloides*.
*c*¹. Hind wing with white apical patch.
*a*². Fore wing with pale oblique band from middle of costa to tornus.
*a*³. Fore wing with the band broad, its outer edge incurved below costa and bent inwards to tornus *obvia*.
*b*³. Fore wing with the band narrow, its outer edge incurved throughout *lenzi*.
*b*². Fore wing without pale oblique band.
*a*³. Fore wing with the basal area chocolate-brown.
*a*⁴. Fore wing with the antemedial and subterminal lines not incurved..... *leucopera*.
*b*⁴. Fore wing with the antemedial and subterminal lines incurved.
*a*⁵. Fore wing with the antemedial line curved inwards to inner margin..... *retrorsa*.
*b*⁵. Fore wing with the antemedial line not curved inwards to inner margin..... *echo*.
*b*³. Fore wing with obliquely curved subbasal chocolate-brown patch from costa to vein 1... *indicabilis*.
*c*³. Fore wing without obliquely curved subbasal chocolate-brown patch.
*a*⁴. Fore wing olive-brown irrorated with blue-grey *mezentia*.
*b*⁴. Fore wing red-brown..... *stumpfi*.
*d*¹. Hind wing with white spots at apex and on termen at discal fold.
*a*². Fore wing with conical white patch broken up into spots on costa towards apex.
*a*³. Fore wing with oblique series of lunulate white spots striated with rufous from the patch to inner margin *imperatrix*.
*b*⁵. Fore wing with the oblique series of white spots interrupted between veins 6 and 3 ... *mabilli*.
*b*². Fore wing without conical white patch on costa towards apex.
*a*³. Hind wing with the basal area yellow.
*a*⁴. Fore wing with oblique white ante- and postmedial lines *orthogramma*.
*b*⁴. Fore wing with the ante- and postmedial lines dark and waved *leucopasa*.
*b*³. Hind wing with the basal area white *simplex*.
*c*³. Hind wing with the basal area grey-brown.
*a*⁴. Fore wing with the antemedial line double, oblique, waved.
*a*⁵. Hind wing with the medial whitish band interrupted at submedian fold *serva*.
*b*⁵. Hind wing with the medial whitish band not interrupted at submedian fold.
*a*⁶. Hind wing with whitish subterminal bar towards tornus *mercatoria*.
*b*⁶. Hind wing with white subterminal spot in submedian fold..... *seychellarum*.
*b*⁴. Fore wing with the antemedial line angled outwards below costa, then incurved *externesignata*.

- e¹. Hind wing without white spots at apex and on termen at discal fold.
- a². Fore wing with the postmedial line not waved.
- a³. Fore wing with the postmedial line angled outwards at vein 6, then obliquely incurved.
- a⁴. Fore wing with dark medial shade; hind wing with the basal area dark brown ... *umbrigera*.
- b⁴. Fore wing without dark medial shade; hind wing with the basal area grey-brown.
- a⁵. Hind wing with the medial band ochreous..... *trapezoides*.
- b⁵. Hind wing with the medial band grey-brown..... *faber*.
- b³. Fore wing with the postmedial line excurved below costa, then obliquely incurved ... *indeterminata*.
- b². Fore wing with the postmedial line waved.
- a³. Fore wing grey-brown.
- a⁴. Fore wing with the terminal area grey except at apex.
- a⁵. Fore wing with the inner edge of the terminal area rather diffused *boris*
- b⁵. Fore wing with the inner edge of the terminal area sharply defined..... *fnita*.
- b⁴. Fore wing with the terminal area not grey.
- a⁵. Fore wing with the cilia white except at apex and tornus *albicitia*.
- b⁵. Fore wing with the cilia brownish.
- a⁶. Fore wing without semielliptical patch on apical part of costa.
- a⁷. Fore wing with the lines double ... *diplographa*.
- b⁷. Fore wing with the lines single..... *sordida*.
- b⁶. Fore wing with semielliptical patch on apical part of costa.
- a⁷. Fore wing with the apical patch bright rufous..... *thermopera*.
- b⁷. Fore wing with the apical patch dark, sometimes tinged in part with rufous *phæobasis*.
- b³. Fore wing red-brown.
- a⁴. Fore wing with conical whitish patch on costa towards apex *albifimbria*.
- b⁴. Fore wing without conical whitish patch on costa towards apex *xanthodera*.

7627. *Achæa præstans*. (Plate CCXVII. fig. 7.)

Ophisma præstans, Guen. Noct. iii. p. 241, pl. 22. f. 2 (1852).

Ophiura bryoxantha, Hmps. Ann. S. Afr. Mus. ii. p. 340 (1902).

♀. Head, thorax, and abdomen red-brown slightly mixed with white; tarsi ringed with whitish. Fore wing red-brown suffused with sap-green, the basal inner area, inner half of postmedial area and a semielliptical patch on apical part of costal area less suffused; a small tuft of white-tipped scales below base of cell with a white point beyond it in the cell; an indistinctly double curved brown subbasal line from costa to submedian fold; antemedial line double, brown, sinuous, slightly angled inwards in submedian fold; a

double nearly straight oblique, brown line beyond it; reniform very narrow, faintly defined by brown and with black points at its upper and lower extremities; medial line double, waved, excurved beyond the cell, then incurved; postmedial line dark, very oblique, slightly sinuous and defined by white on outer side from costa to vein 6 where it has a small dark mark beyond it and is met by an oblique blue-white shade from apex, then strongly incurved, dentate and with traces of a line beyond it; subterminal line indistinct, pale, waved, faintly defined on each side by brown suffusion and arising below vein 6; a series of black and white points just before termen; cilia with some dark brown at tips. Hind wing red-brown with an oblique black-brown shade before the bright yellow apical patch which ends at vein 4 and extends on costal area to near middle; a waved dark line before termen from vein 4 to near tornus. Underside of fore wing black-brown, the costa and apical area red-brown irrorated with white, a broad oblique, yellow band from below middle of costa to tornus; hind wing pale red-brown irrorated with dark brown and on costal area with some whitish, two dark slightly waved medial lines and a pale subterminal line incurved below costa.

Ab. 1. Fore wing with the basal and terminal areas browner, the white medial area bright sap-green with some white suffusion before the apical patch which is deep chocolate-brown.

Ab. 2. Fore wing browner, the area between the outer of the two lines beyond the antemedial line and the medial line pale green becoming whitish towards costa, the patch on apical part of costa bright rufous, dark at apex.

Ab. 3. Fore wing almost uniform red-brown with the markings obsolescent, the area between the outer of the two lines beyond the antemedial and the medial line nearly pure white.

Ab. 4. Fore wing red-brown with lunulate white spots beyond the medial line above and below vein 3.

Ab. 5. Similar but fore wing with the ground-colour greenish grey.

Hab. LORENÇO MARQUES, Delagoa Bay in Coll. Druce; NATAL, 1 ♀ type *bryoxantha*; MADAGASCAR in Coll. Kenrick. *Exp.* 68-72 millim.

7628. *Achæa poliopasta*, n. sp. (Plate CCXVII. fig. 8.)

♀. Head and thorax black-brown very slightly irrorated with whitish scales; tarsi slightly ringed with ochreous brown; abdomen dark brown. Fore wing black-brown irrorated with a few blue-white scales, the medial area suffused with blue-white except at costa and inner margin; an oblique blackish subbasal band from costa to vein 1; antemedial line indistinct, faintly defined on inner side by blue-white scales, somewhat oblique, waved; reniform faintly defined by blackish and with black points at its upper and lower extremities, narrow, its outer edge irregular; a slight dark medial line excurved beyond the cell and incurved at discal fold; postmedial line double, filled in with blue-white and at costa with

ochreous white, oblique to vein 6, then dentate, incurved below vein 4, a black and red-brown patch beyond it on costal area defined by a white streak below and with some white points on costa; subterminal line slight and whitish to the white streak, angled inwards below costa and outwards at vein 7, then very indistinct, dark, waved; a series of black and white points just before termen; cilia with a slight ochreous line at base. Hind wing dark brown; a golden-yellow apical patch extending to vein 4 and narrow below vein 6; a black point before termen at discal fold and black terminal line between veins 4 and 1; cilia with a slight ochreous line at base at the dark area. Underside dark brown; fore wing with oblique yellow band from below middle of costa to tornus; hind wing with two indistinct dark postmedial lines.

Hab. CAMEROONS, 1 ♀ type. *Exp.* 70 millim.

***7629. *Achæa radama*.**

Achæa radama, Feld. Reis. Nov. pl. 116. f. 17 (1874).

Head, thorax, and abdomen dark brown, the two former and the tibiae with a few white scales, the spurs and tarsi ringed with whitish. Fore wing dark brown; the basal area with some reddish brown; an oblique sinuous black subbasal line from costa to submedian fold; antemedial line black defined on outer side by reddish brown, oblique, sinuous; the basal part of medial area black-brown, with sinuous outer edge, the medial part violaceous grey irrorated with red-brown with small black spots at angles of cell, bounded by the dentate dark brown medial line excurved beyond the cell, then incurved, the outer part violaceous grey suffused with red-brown and with dark brown on costal half, with another indistinct dentate line beyond the medial line with small violaceous white spots on it above and below vein 3; postmedial line double, blackish filled in with violaceous white, oblique and sinuous to below vein 6, then dentate and incurved below vein 4; terminal area black-brown tinged with red-brown towards termen except at apex; a curved black-brown patch defined by rufous from costa to vein 6, its outer edge excised and with some violaceous white irroration beyond it and some rufous points on costa; traces of a sinuous dark subterminal line from vein 6 to inner margin; a crenulate black-brown terminal line with white points beyond it at the interspaces; cilia black-brown with a rufous line at base. Hind wing black-brown with a large apical yellow patch extending to below vein 5, very broad at costa, its inner edge strongly bent outwards at vein 6; traces of an oblique pale line from discal fold to inner margin near tornus; a faint yellow line from the apical patch to termen at vein 1; a waved dark line just before termen with yellowish beyond it, obsolete towards apex; cilia yellow at the apical patch, then black-brown with some yellowish at tips at submedian interspace. Underside of fore wing black-brown, the costa irrorated with white, the apical area paler and irrorated with

white, an oblique yellow band from end of cell to tornus; hind wing with some yellowish irroration and white on costal and terminal areas, indistinct medial, postmedial, and subterminal lines, the last waved and defined on outer side by yellowish, a series of black points before termen.

Ab. 1. Fore wing with the outer part of medial area tinged with bluish green and without the white spots above and below vein 3, the black-brown beyond medial part of postmedial line reduced to spots above and below vein 3.

Ab. 2. Similar, but fore wing with the outer part of medial area red-brown without violaceous or green suffusion.

Hab. MADAGASCAR, Colls. Druce and Kenrick. *Exp.* 68-72 millim.

7630. *Achæa intercisa*. (Plate CCXVII. fig. 9.)

Achæa intercisa, Wlk. xxxiii. 960 (1865).

Head, thorax, and abdomen dark brown, the patagia with some whitish at base; palpi ochreous white in front; frons with whitish streaks at sides; a whitish ring behind the eyes; pectus and legs grey-brown, the tibiæ and tarsi irrorated with ochreous. Fore wing with the basal area deep chocolate-brown, the rest of wing ochreous suffused with rufous and irrorated with dark brown, a large deep chocolate-brown patch on apical part of costal area; subbasal line whitish, double towards costa, very oblique to the antemedial line at vein 1; the median nervure beyond it streaked with whitish and vein 1 whitish on basal area; antemedial line whitish defined on outer side by black forming a small patch at costa, oblique towards costa, minutely waved in cell, acutely angled inwards on median nervure and vein 1 and excurved in submedian fold; reniform whitish defined by blackish and with black points at upper and lower extremities, very narrow, a small brown lunule above it from costa; postmedial line blackish slightly defined on outer side by white, slightly sinuous, oblique to vein 5, then obliquely curved to tornus, a small wedge-shaped black spot beyond it below vein 5; the large dark patch on apical part of costa extending to vein 5, just beyond the postmedial line, some minute whitish points on it at costa; subterminal line represented by a fine oblique slightly sinuous whitish line on the dark patch; a series of black points just before termen; cilia with a whitish line at base. Hind wing fuscous brown; a large apical yellow patch narrowing to a point below vein 4, then the termen red-brown to vein 1. Underside dark brown; fore wing with a broad oblique yellow band from below middle of costa to tornus, diffused on inner side, a brown discoidal lunule on it and the obliquely curved postmedial line near its outer edge towards costa, a terminal yellow band except towards tornus, its inner edge angled inwards at discal fold; hind wing with slight discoidal striga, two oblique minutely waved postmedial lines, the yellow terminal area extending

to vein 1, irrorated with brown, its inner edge sinuous and waved, a series of black points before termen.

Hab. SIERRA LEONE (*Foxcroft*), 1 ♀ type; S. NIGERIA, Ilesha (*Humfrey*), 1 ♂. *Exp.* 62 millim.

*7631. *Achæa chrysopera*. (Plate CCXVII. fig. 10.)

Achæa chrysopera, Druce, A. M. N. H. (8) ix. p. 552 (1912).

♂. Head brown; thorax rufous with an orange tinge; pectus ochreous brown; legs grey-brown, the tarsi ringed with white; abdomen red-brown, some white points at sides towards base, the anal tuft blackish below and with some white at sides. Fore wing bright rufous mixed with some orange especially on costal area, the base of inner margin brown; a double brown subbasal line from costa to submedian fold; antemedial line double, brown, waved; a black point in middle of cell and slight blackish discoidal lunule; medial line brown, dentate, excurved beyond the cell, then incurved; a conical white patch on postmedial part of costa tinged with blue except on inner side and irrorated with red-brown, the costa red-brown with some white points; postmedial line brown, dentate, slight rufous and oblique to vein 6 where it traverses the white patch, then inwardly oblique; subterminal line indistinct, dark, oblique from costa to discal fold, then dentate; a series of black points before termen; cilia white at tips except towards tornus. Hind wing blackish brown, the apical area golden yellow extending on costal area to near middle and on terminal area to vein 5; a faint rufous postmedial line arising at vein 5, oblique to vein 2, then bent inwards to inner margin; the terminal area red-brown below the yellow patch with a faint waved yellowish line on its inner edge; a series of blackish points before medial part of termen; cilia ochreous, white at tips to vein 2. Underside pale red-brown; fore wing with the costal area and terminal area except towards tornus irrorated with violaceous white, small brown spots on and beyond the discocellulars, the area from lower angle of cell to tornus pale yellowish with a blackish brown patch beyond it; hind wing with the basal, costal, and inner areas irrorated with white, a small dark discoidal spot, traces of a waved medial line, a more distinct waved postmedial line, a series of black points before termen on short white streaks.

Hab. GERM. E. AFRICA, Dar-es-Salaam, type † ♂ in Coll. Druce. *Exp.* 54 millim.

*7632. *Achæa dejeani*. (Plate CCXVII. fig. 11.)

Ophiura dejeanii, Boisd. Faun. Ent. Madag. p. 102, pl. 15. f. 4 (1833).

Achæa oreä, Mab. C. R. Soc. Ent. Belg. xxv. p. lviii (1881).

♂. Head and thorax pale reddish brown; palpi, pectus, legs, and abdomen grey-brown, the last with the anal tuft and ventral surface towards extremity reddish brown. Fore wing brown

suffused with purple-grey and with slight dark irroration, the outer part of medial area greyer except towards inner margin; an indistinct waved subbasal line from costa to submedian fold; antemedial line indistinct, double, filled in and defined on outer side by grey, oblique, irregularly waved; three black discoidal points; two dentate dark postmedial lines, excurved to vein 4, then incurved, some pale points beyond them on costa; an indistinct waved dark subterminal line defined on outer side by greyish; a series of blackish points before termen; cilia pale at tips except towards tornus. Hind wing grey-brown, the apical half black-brown with a large apical yellow patch extending to below vein 5, its inner edge oblique and sinuous; cilia yellow at the patch, then yellowish at tips to vein 2. Underside of fore wing grey-brown irrorated with blackish, a blackish discoidal bar with broad pale yellow band from beyond it to terminal part of inner margin, and blackish suffusion beyond it, a blackish postmedial line from costa to vein 6; hind wing grey thickly irrorated with fuscous, a dark discoidal spot, medial line excurved below costa, oblique postmedial line and pale subterminal line defined on each side by blackish.

Hab. CENTR. MADAGASCAR (*Pratt*) in Coll. Kenrick, type † ♂ *orea* in Coll. Mabille. *Exp.* 56 millim.

7633. *Achæa ezea*.

Phalæna ezea, Cram. Pap. Exot. iii. p. 78, pl. 239. f. D (1779).

Noctua hircus, Fabr. Ent. Syst. iii. 2, p. 28 (1794).

Achæa leona, Feld. Reis. Nov. pl. 116. f. 13 (1874).

Head and thorax red-brown; pectus, legs, and abdomen grey-brown. Fore wing red-brown with a slight cupreous gloss; a faint oblique pale subbasal line from costa to vein 1; antemedial line brown defined on each side by pale rufous, oblique, sinuous; a dark point in middle of cell and two discoidal points; a slight dark dentate medial line, excurved beyond the cell and incurved below it; postmedial line dark, dentate, oblique to vein 6 and incurved below vein 4; a semielliptical pale reddish patch on apical part of costa defined below by dark suffusion and with some pale points on costa; an indistinct pale subterminal line, incurved below vein 3, the area beyond it suffused with dark brown; cilia fuscous brown with a fine greyish line at base. Hind wing fuscous brown with a yellow patch at apex extending to vein 4 and narrow below vein 6. Underside fuscous brown; fore wing with diffused pale yellow patch beyond the cell from below the costa to vein 2 and dark discoidal striga, the inner area whitish towards tornus, the termen suffused with blue-grey except towards tornus with a series of black points before termen; hind wing with faint dark postmedial line except towards inner margin, a whitish patch at apex with slight pale subterminal line from it to termen at vein 1.

Hab. SIERRA LEONE (*Clements*), 2 ♂, 1 ♀; LIBERIA (*Pearce*), 1 ♂; GOLD COAST (*Johnston*), 2 ♂, Cape Coast Castle (*Higlett*), 1 ♀, Fort Gorilla, 1 ♂, Aburi (*Sir G. Carter*), 1 ♂, Bibianaha (*Spurrell*),

1 ♀, Kumasi (*Whiteside*), 1 ♂; S. NIGERIA, Lagos (*Boag*), 1 ♂, Olokemeji (*Dudgeon*), 1 ♀, Old Calabar (*Steadley, Crompton, Sampson*), 2 ♂, 3 ♀, Abutshi (*Newman*), 1 ♀, Illesha (*Humfrey*), 1 ♂, 1 ♀. *Exp.* 56-66 millim.

*7634. *Achæa balteata*. (Plate CCXVII. fig. 12.)

Achæa balteata, de Joan, Bull. Soc. Ent. Fr. 1912, p. 333.

♀. Head and thorax dark brown; palpi grey in front; pectus, legs, and abdomen grey-brown. Fore wing dark brown with an olive tinge, the terminal area grey-brown with a purplish tinge except towards apex; subbasal line ochreous white, excurved below costa and cell and ending at vein 1; antemedial line fine, black-brown, slightly defined on outer side by violaceous white and on both sides towards costa, oblique and nearly straight from costa before middle to inner margin beyond middle; blackish points slightly defined by whitish at angles of cell connected by a slight curved pale striga; postmedial line fine, black-brown slightly defined on each side by violaceous white, obliquely incurved from costa beyond middle to tornus, giving off on inner side beyond lower angle of cell a slight somewhat sinuous violaceous line to inner margin between it and the antemedial line, the area between these two lines having a purplish tinge; some whitish points on postmedial part of costa; subterminal line whitish and oblique from costa to near termen at vein 7, then defined on inner side by black-brown suffusion and incurved to tornus; a series of black points before termen on minute whitish streaks. Hind wing dark greyish brown, the termen narrowly yellow from apex to vein 4. Underside of fore wing grey-brown, the termen greyer, the inner area whitish, a narrow rather oblique ochreous whitish medial band from below costa to the inner area; hind wing grey suffused and irrorated with brown, a slight dark discoidal spot, a faint oblique slightly sinuous medial line defined on outer side by whitish, and a series of blackish points just before termen.

Hab. N. MADAGASCAR, type ♀ in Coll. de Joannis. *Exp.* 54 millim.

7635. *Achæa catocaloides*. (Plate CCXVII. fig. 13.)

Achæa catocaloides, Guen. Noct. iii. p. 245 (1852).

Ophisma exhibens, Wlk. xiv. 1388 (1858).

Head and thorax pale red-brown; pectus, legs, and abdomen greyish brown. Fore wing dull reddish brown; an oblique slightly sinuous dark antemedial line; a minute black point in middle of cell; reniform faintly defined by blackish, small and placed on an oblique brown medial shade; postmedial line blackish very slightly defined on outer side by whitish, crenulate, oblique to vein 6 and incurved below vein 4; a faint dark subterminal shade, excurved

below vein 7 and bent outwards to termen above tornus, and traces of a pale waved subterminal line from vein 4 to inner margin; a series of minute black points just before termen; cilia dark brown. Hind wing fuscous brown, the terminal area black-brown except towards tornus; an oblique yellow band from middle of costa to below vein 2 where it narrows to a point; a small yellow spot on costa at apex, a patch of yellow on termen and cilia below apex, and an oblique yellowish striga from vein 2 to termen at vein 1. Underside grey-brown irrorated with dark brown; fore wing with oblique pale yellowish band from below middle of costa to tornus enclosing a black discoidal spot, its outer edge incurved at middle and with blackish patch beyond it from vein 6 to termen at submedian fold; hind wing with two oblique dark postmedial lines, the outer line expanding into a dark patch near tornus.

Hab. SIERRA LEONE (*Cator*), 1 ♂; GOLD COAST, Kumasi (*White-side*), 3 ♂; S. NIGERIA, Old Calabar (*Cockburn*, *Crompton*, *Sampson*), 6 ♂, 7 ♀, Sapele (*Sampson*), 2 ♀; CAMEROONS, 1 ♂; UGANDA, Entebbe (*Minchin*), 1 ♀; BR. E. AFRICA, Pemba I. (*Burt*), 1 ♀. *HAB. IGN.*, 1 ♂ type *exhibens*. *Exp.* 56-68 millim.

7636. *Achæa obvia*, n. sp. (Plate CCXVII. fig. 14.)

Head and tegulæ dull reddish brown, the latter greyish brown at tips; thorax and abdomen grey-brown; tibiæ and tarsi whitish irrorated with brown. Fore wing dark brown, the medial area whitish tinged and irrorated with brown, the terminal area grey-brown except at apex; subbasal line double filled in with whitish, excurved below costa and ending at submedian fold; antemedial line double, blackish filled in with yellow-brown, oblique and slightly sinuous; a small black-brown spot at upper angle of cell with a striga from its lower extremity; a faint double medial line, very slightly excurved beyond the cell, then very slightly incurved; postmedial line double, blackish filled in with whitish towards costa then with yellow-brown, oblique, straight and ending at tornus; some minute white points on postmedial part of costa; a pure white apical spot; the inner edge of the grey terminal area oblique from termen below apex, angled outwards at vein 4, then oblique to the postmedial line at vein 2; a series of black and white points just before termen; a fine whitish line at base of cilia. Hind wing dark brown; a small pure white apical patch with sinuous inner edge, extending as a line on termen to vein 4; the cilia with a fine pale line at base below vein 4. Underside greyish brown; fore wing with broad oblique white band from below middle of costa to tornus with slight brown discoidal striga on it, a faint sinuous whitish subterminal line arising from the apical spot; hind wing with slight discoidal point, faint postmedial line and slight waved whitish subterminal line from the apical patch to termen at vein 1.

Hab. S. NIGERIA, Ilesha (*Humfrey*), 2 ♂, 2 ♀ type. *Exp.* 50-54 millim.

***7637. *Achæa lenzi*.**

Ophiusa lenzi, Saalm. Stett. Ent. Zeit. xlii. p. 435 (1881); id. Lep. Madag. p. 467, f. 129.

♀. Head and thorax dark brown; palpi pale reddish brown; antennæ with the basal joint whitish; pectus, legs, and abdomen dark brown mixed with greyish, the spurs and tarsi ringed with whitish. Fore wing black-brown; the basal costal area red-brown with the black subbasal line before its outer edge, excurved below costa and ending at submedian fold; antemedial line black slightly defined on each side by whitish, very oblique and slightly bent inwards to inner margin; an oblique red-brown band mixed with whitish from middle of costa to inner margin towards tornus, two small black spots defined by whitish at angles of cell; postmedial line black defined on inner side by white and on outer by red-brown and white towards costa, very obliquely incurved; three white points on postmedial part of costa; terminal area pale red-brown defined on inner side by the slight whitish subterminal line defining the dark area, excurved to near termen below vein 7, incurved at discal fold, excurved at middle, then incurved; a series of black points before termen with violaceous white suffusion before them except towards apex. Hind wing greyish fuscous, a white apical spot with the termen white from it to below vein 5, then pale reddish brown with a dark line before it from vein 3 to termen at vein 1; a waved blackish line before termen except towards apex; cilia reddish brown, white on apical area. Underside of fore wing fuscous with some whitish irroration on costa, an oblique whitish medial band from below costa to inner margin, the termen whitish irrorated with brown except towards tornus, cilia whitish at base, red-brown at tips; hind wing whitish thickly irrorated with brown, an oblique waved medial line, a subterminal line excurved and dentate at middle, a series of black points before termen.

Hab. CENTR. MADAGASCAR (*Pratt*), in Coll. Kenrick. *Exp.* 44 millim.

***7638. *Achæa leucopera*. (Plate CCXVII. fig. 15.)**

Achæa leucopera, Druce, A. M. N. H. (8) ix. p. 552 (1912).

♂. Head and thorax bright rufous; legs brown, the tarsi ringed with white; abdomen brown tinged with leaden grey, the ventral surface red-brown. Fore wing with the basal area deep chocolate-brown with a rufous patch at base of costa and the veins tinged with leaden grey, defined by a whitish line excurved in submedian interspace; basal half of medial area greenish white, the outer half pale silvery blue, irrorated with chocolate-brown; reniform defined by black points above and below and striæ at sides; medial line indistinctly double, dark, the outer line diffused, dentate, excurved beyond the cell, then incurved; postmedial line indistinctly double, dark, dentate, excurved to vein 4, then incurved; terminal area red-

brown with some white points on costa; a rufous apical patch defined on inner side by a slight incurved whitish line from costa to vein 7; subterminal line dark brown, oblique and diffused from apex to vein 6, then double, slightly incurved below vein 3; a crenulate blackish terminal line; cilia dark brown with pale lines at base and middle. Hind wing blackish brown with pure white apical patch extending to vein 5; cilia below the white patch tinged with grey and with slight dark line near base. Underside pale brown irrorated with dark brown; fore wing with the terminal area dark brown, a white apical patch extending to below vein 5, a dark discoidal spot with diffused white patch from just before it to tornus, postmedial line curved and waved, subterminal line angled outwards at vein 7, black points before termen on the white patch; hind wing with dark discoidal spot, diffused medial line, waved postmedial line, subterminal line incurved below costa then waved, and black points before termen on the white patch.

♀. Fore wing with the basal area red-brown, the rest of wing rufous, the medial area with a slight violaceous tinge; hind wing paler brown.

Hab. CAMEROONS, Ja R., Bitji (*Bates*), type † ♂ in Coll. Druce; Congo, Up. Kasai Distr. (*Landbeck*), ♀ in Coll. Druce. *Exp.* 52 millim.

7639. *Achæa retrorsa*, n. sp. (Plate CCXVII. fig. 16.)

Head and thorax red-brown, the tegulæ tipped with grey, the patagia with the outer edge and tips grey; frons with fine grey lines at sides; antennæ with the shaft white in front except towards tips; pectus and legs fuscous brown mixed with some grey, the spurs and tarsi ringed with white; abdomen fuscous brown, the crests at base tipped with whitish. Fore wing with the basal area chocolate-brown with oblique whitish subbasal line from costa to submedian fold slightly angled inwards in cell; medial line black defined on outer side by yellow-white, incurved from costa to vein 1, then curved inwards to inner margin, the area beyond it pale red-brown sparsely irrorated with black to the subterminal line; a faint pale reniform stigma with black points at angles of cell and a point near its inner edge; two indistinct postmedial lines with faint violaceous white suffusion between them, excurved below costa, then incurved, the outer line with some white towards costa, the inner line with small black spot at inner margin; cilia of inner margin white except towards base and tornus; subterminal line rather diffused black-brown, oblique from apex to above vein 6, then strongly bent inwards and incurved to tornus, the area beyond it white tinged with brown and irrorated with blackish, whiter toward apex, the veins finely streaked with white; a series of black points before termen and spots at submedian fold and tornus; a fine black terminal line and slight line near base of cilia, which are white tinged with brown. Hind wing black-brown, the base tinged with bluish white; a bluish white line from middle of costa to

tornus; a pale subterminal line from vein 3 to termen at vein 1; a white spot at apex; the termen tinged with red-brown at middle and with a series of black points before it; cilia white towards apex, then blackish with a pale line at base. Underside reddish brown irrorated with blackish; fore wing with black discoidal lunule, a large patch of black suffusion on postmedial area below middle from before the postmedial line, a faint waved whitish subterminal line excurved below costa, the termen suffused with white; hind wing with the inner area suffused with blue-grey, two curved postmedial lines and a subterminal line defined on outer side by whitish.

Hab. MADAGASCAR, Betsileo (Cowan), 1 ♂ type, ♀ in Coll. Kenrick. *Exp.* 70 millim.

7640. *Achæa echo*. (Plate CCXVII. fig. 17.)

Ophisma echo, Wlk. xiv. 1374 (1858).

**Achæa mariaca*, Plotz, Stett. Ent. Zeit. xli. p. 299 (1880).

Head and thorax pale red-brown; abdomen greyish brown. Fore wing with the basal area red-brown to the medial line towards which it is darker; subbasal line brown defined on outer side by whitish, excurved below costa, then oblique and ending at submedian fold; traces of an oblique sinuous antemedial line; medial line dark brown, incurved, slightly excurved above inner margin; medial area pale rufous with slight black points at the angles of cell; postmedial area reddish brown, extending on costal half to before the slight dentate black postmedial line, which is excurved below costa, then incurved; some whitish points on costa towards apex; a black-brown line downcurved and rather diffused on inner side from apex to vein 6, then rather indistinctly double and incurved to tornus where there is a slight whitish mark on it, the area beyond it whitish tinged with red-brown and irrorated with dark brown and with slight white streaks on the veins; a series of black points before the fine brown terminal line; a whitish line at base of cilia. Hind wing grey-brown; an indistinct whitish line from middle of costa to tornus and a faint pale line from vein 3 to termen near tornus; a wedge-shaped white apical patch; the termen whitish irrorated with brown from below apex to submedian fold; some slight blackish points before the fine brown terminal line; cilia white except at tips towards apex. Underside greyish suffused with brown and irrorated with dark brown; fore wing with slight dark discoidal bar and postmedial line excurved below costa, then incurved, with some whitish before it at middle and large fuscous patch beyond it; hind wing with dark discoidal striga and two slightly waved dark postmedial lines except on inner area.

Hab. SIERRA LEONE (*Morgan, Mitford*), 2 ♂; S. NIGERIA, Ilesha (*Humfrey*), 1 ♀; MASHONALAND, Umtali (*Marshall*), 1 ♂; TRANSVAAL, Lydenburg (*Zutrencka*), 1 ♂; NATAL, Durban (*Leigh*), 1 ♀. *Exp.* 66-74 millim.

Larva. Brownish ochreous thickly irrorated and striated with black, some of the striæ forming obscure subdorsal, lateral and stigmatal stripes; ventral surface ochreous white; warts with pointed prominences, the 11th somite with more prominent pair of dorsal points; head reticulated with black.

7641. *Achæa indicabilis*. (Plate CCXVII. fig. 18.)

Achæa indicabilis, Wlk. xiv. 1394 (1858).

♀. Head, thorax, and abdomen grey-brown. Fore wing grey suffused and irrorated with brown, the terminal area greyer except towards apex; an obliquely curved deep chocolate-brown subbasal patch from costa to vein 1, its outer edge slightly indented at submedian fold and faintly defined by whitish, a curved brown line slightly defined by whitish from its lower extremity to inner margin; a small brown spot with pale point in centre at middle of cell; reniform defined on inner side by a brown striga, a dark point at its upper extremity and small spot at lower; medial line brown faintly defined on inner side by whitish except towards costa, strongly excurved beyond the cell, then incurved; postmedial line slight, brown, waved, oblique towards costa and incurved below vein 6, some minute whitish points beyond it on costa; the apical area more strongly suffused with brown; subterminal line black-brown, oblique and downcurved from apex to vein 6, then incurved, double and filled in with yellowish towards tornus; a series of black points just before termen and a slight brown terminal line; cilia grey at base, brown at tips. Hind wing grey-brown with a pure white apical patch extending to below vein 5; an oblique greyish line from vein 5 to termen at vein 1 and a blackish terminal line from the white patch to vein 1. Underside grey-brown irrorated with brown; fore wing with brown discoidal spot with whitish shade from it to tornus, a slight postmedial line except on inner area, excurved below costa, a whitish terminal band on apical half, its inner edge excurved below vein 7; hind wing with discoidal striga, curved medial line, oblique postmedial line, the terminal whitish band irrorated with brown and extending to vein 1, a series of black points before termen.

Hab. SIERRA LEONE (*Morgan*), 1 ♀ type; GOLD COAST, Kumasi (*McDowall*), 1 ♀; S. NIGERIA, Ilesha (*Humfrey*), 1 ♀, Lokoja (*Christy*), 1 ♀. *Exp.* 66-72 millim.

7642. *Achæa mezentia*.

Noctua mezentia, Stoll, Pap. Exot. iv. p. 70, pl. 323. f. F (1780); Hmps. n.

Moths Ind. ii. p. 494.

Achæa reversa, Wlk. xiv. 1399 (1858); Moore, Lep. Ceyl. iii. p. 165, pl. 169. ff. 2, 2a.

Sypna lugens, Wlk. xxxiii. 938 (1865).

Head and thorax dull olive-brown slightly irrorated with white;

pectus and legs brown mixed with grey, the tarsi ringed with ochreous; abdomen grey-brown with a faint bluish gloss on dorsum. Fore wing dull olive-brown irrorated with blue-grey, the outer part of medial area and the terminal area except below apex suffused with blue-grey; traces of a slightly waved grey antemedial line; two small dark discoidal spots; medial line indistinct, dark, slightly waved, incurved below vein 4; postmedial line indistinct, dark, oblique and defined on outer side by whitish from costa to vein 6, then waved, incurved below vein 4, a rather conical patch of blue-grey suffusion beyond it on costal area and some ochreous white points on costa; a sinuous whitish subterminal line from costa to vein 6, then faint traces of a waved dark line; a series of slight dark and whitish points just before termen and a fine pale line at base of cilia. Hind wing dark fuscous brown with some bluish suffusion on inner area; a large pure white apical patch extending to vein 4, its inner edge sinuous; the terminal area slightly irrorated with whitish towards tornus. Underside fuscous brown irrorated with whitish; fore wing with broad oblique white band with waved edges from beyond upper angle of cell to tornus and some whitish suffusion on terminal area except towards tornus; hind wing with indistinct curved medial and postmedial lines, slightly waved indistinct whitish subterminal line excurved below vein 6, and some white irroration on apical area.

Ab. 1. Fore wing with the medial area brownish ochreous, the postmedial line defined by brownish ochreous.

Ab. 2. Fore wing with the medial area white, on inner area the white reduced to a spot on vein 1.

Ab. 3. *reversa*. Fore wing with the markings almost obsolete.

Hab. ? MADRAS; CEYLON (*Templeton, Lindesay*), 4 ♂, 6 ♀ types *reversa* and *lugens*, Kandy (*Yerbury*), 1 ♂, 2 ♀, Trincomali (*Yerbury*), 1 ♀. *Exp.* 48-66 millim.

Larva. Olive-grey with numerous longitudinal lines; a paler lateral band; ventral surface pinkish; anal somite with two dorsal yellow tubercles; head yellowish with black lines. Food-plant, *Canthium*.

*7643. *Achæa stumpffii*.

Achæa stumpffii, Saalm. Ber. Senck. Ges. 1880, p. 282; id. Lep. Madag. p. 463, f. 213.

♀. Head and thorax rufous; antennæ blackish with the basal joint whitish; palpi, pectus, and legs grey mixed with dark brown; abdomen grey-brown, the ventral surface grey towards base. Fore wing rufous tinged with violaceous grey except on terminal area; a minute tuft of white scales at base; antemedial line double, fuscous, oblique, waved; a blackish point in middle of cell and three discoidal points; medial line indistinct, double, waved, excurved beyond the cell, then incurved; postmedial line fuscous, waved, excurved to vein 4, then incurved, some ochreous points

beyond it on costa; an indistinct dark subterminal line angled outwards at vein 7; terminal area deep rufous; cilia grey-brown, whitish at tips except towards tornus. Hind wing dark grey-brown, the terminal area black-brown except towards tornus; an apical creamy white patch emitting a yellowish white line just before termen to vein 4; cilia grey-brown, whitish on apical area. Underside of fore wing grey-brown, a sinuous whitish band from end of cell to tornus with a large patch of fuscous black suffusion beyond it, the terminal area grey-white except towards tornus; hind wing grey thickly irrorated with blackish, a slight medial line from costa to vein 4, postmedial line ending at submedian fold, and slightly waved grey subterminal line defined on each side by fuscous suffusion.

Hab. CENTR. MADAGASCAR (*Pratt*), in Coll. Kenrick. *Exp.* 62 millim.

7644. *Achæa imperatrix*.

Ophisma imperatrix, Saalm. Stett. Ent. Zeit. 1881, p. 214; id. Lep. Madag. p. 461, f. 131 (1891).

♀. Head and thorax brownish white; abdomen glossy brownish grey. Fore wing glossy brownish grey; a small tuft of pure white scales below base of cell followed by a point in cell before the slight curved brown subbasal line from costa to median nervure; antemedial line slight, rufous, oblique, waved, with some rufous suffusion before it in and below the cell; a dark point in middle of cell; two small red-brown discoidal annuli filled in with rufous; traces of a faint waved medial line excurved beyond the cell, then incurved; postmedial line red-brown, crenulate, defined on outer side by pure white lunules with rufous irroration on their outer side and with some rufous striation beyond them towards inner margin, oblique to vein 6 where it is met by an oblique series of four white spots from just below costa near apex with some rufous irroration on their inner side, the spot above vein 7 bidentate and the two series of spots forming a conical patch, the postmedial line inwardly oblique below vein 6; a series of black points before termen, the termen whitish. Hind wing grey, the terminal area broadly blackish defined on inner side by a slight oblique white bar between veins 5 and 2; a small white patch at apex and traces of a curved whitish line from vein 4 to termen at vein 1; termen narrowly whitish from below apex to vein 1; cilia white tinged with brown. Underside grey irrorated with brown; fore wing with some fuscous suffusion in submedian interspace and at middle of subterminal area, a blackish discoidal lunule, conical whitish patch irrorated with brown on costa towards apex and some white beyond the discoidal lunule and on inner area beyond the medial line; hind wing with slight discoidal spot, waved medial and postmedial lines, double subterminal line and series of points before termen.

Hab. MADAGASCAR (*Peake*), 1 ♀. *Exp.* 84 millim.

7645. *Achæa mabillii*.

Ophisma mabillii, Saalm. Pet. Nouv. Ent. ii. p. 297 (1879); id. Lep. Madag. p. 463, f. 212.

♂. Head and thorax reddish brown; palpi, pectus, legs and abdomen grey-brown. Fore wing brown with a faint cupreous gloss; a small tuft of white scales below base of cell; a faint dark antemedial line, slightly excurved below costa, then oblique; traces of a dark discoidal striga; postmedial line faint, dark, waved, oblique to vein 6 with a conical white patch beyond it irrorated with rufous and traversed by slight dark streaks on the veins and the dentate subterminal line forming a dark mark at costa with two white points on it, the postmedial line inwardly oblique below vein 6 and faintly defined on outer side by rufous, incurved in submedian interspace where there is a white spot beyond it with a waved rufous line near its outer edge with small white spots above and below it; a faint waved dark line just before termen. Hind wing grey-brown, the terminal area fuscous except towards tornus; a small white spot at apex and the termen and cilia white from vein 7 to below 5. Underside bluish grey; fore wing with the terminal area suffused with fuscous brown, a bluish white patch at end of cell with the dark discoidal striga on it and a white patch from below it to tornus, the costal patch reddish yellow; hind wing irrorated with brown, traces of a curved postmedial line, a waved line just before termen.

Hab. SIERRA LEONE, Freetown (*Smith*), 1 ♂; BR. E. AFRICA, Njoro (*Cholmley*), 1 ♂; NATAL, Durban (*Leigh*), 1 ♂; MADAGASCAR, Nossi-Bé. *Exp.* 66 millim.

*7646. *Achæa orthogramma*. (Plate CCXVIII. fig. 7.)

Ophiodes orthogramma, Mab. Bull. Soc. Philom. (7) iii. p. 140 (1879).
Achæa sarcopasa, Druce, A. M. N. H. (8) ix. p. 553 (1912).

♂. Head and thorax pale yellow tinged with rufous; pectus and legs yellow tinged with white; abdomen pale yellow dorsally suffused with rufous except at base, the anal tuft whitish. Fore wing pale yellow tinged with rufous; subbasal line white slightly defined on inner side by grey, from costa to vein 1; antemedial line white defined on inner side by grey, oblique, straight; a small fuscous annulus at upper angle of cell with slight lunule from it to lower angle; a faint oblique dark medial line just beyond the cell, slightly excurved beyond lower angle; postmedial line white defined on inner side by grey, oblique to submedian fold, then erect, the area beyond it pale rufous leaving the terminal area grey from below apex to submedian fold; a pale waved subterminal line with slight fuscous suffusion beyond it above middle and towards tornus and before it below middle, oblique towards costa and slightly excurved at middle; cilia grey with a dark line near base. Hind wing pale yellow, the inner area tinged with rufous; a rather diffused yellow

subterminal line defined on inner side by a broad black band from costa to vein 2, then by brownish; the terminal area with a minute black streak on extremity of vein 8, a black patch between veins 6, 7 with a white patch below it, then brownish to tornus; cilia white tinged with brown towards tornus. Underside of fore wing whitish, the costal and terminal areas irrorated with fuscous, an oblique black discoidal bar, an oblique blackish postmedial line with black band beyond it between veins 5 and 2; hind wing whitish irrorated with fuscous, a slight blackish discoidal spot and traces of postmedial and sinuous subterminal lines.

Hab. MADAGASCAR, type † ♂ in Coll. Mabilie (*Waters*), type † ♂ *sarcopasa* in Coll. Druce. *Exp.* 66 millim.

7647. *Achæa leucopasa*. (Plate CCXVIII. fig. 8.)

Ophisma leucopasa, Wlk. iv. 1386 (1858).

Ophisma karschi, Pag. Voeltzow, Reise in Ost-Afrik. ii. p. 118, pl. 6. f. 16 (1907).

♀. Head and thorax fulvous yellow; palpi, frons, and antennæ grey-white; pectus and legs white, the latter irrorated with black; abdomen grey-white, dorsally tinged with fulvous yellow except at extremity, ventrally irrorated with black. Fore wing yellow tinged with rufous, the postmedial area suffused with violaceous white, the terminal area pale rufous; faint traces of an oblique sinuous antemedial line and of a reniform defined by blackish scales; a very indistinct double postmedial line, excurved to vein 4, then oblique; subterminal line represented by slight dark marks between veins 5 and 2; a fine brown terminal line; cilia white with brown lines at middle and tips. Hind wing yellow, the inner area faintly tinged with rufous; an oblique blackish postmedial band ending at tornus, conjoined to a blackish patch on middle of terminal area emitting an oblique streak to apex and streaks to termen below veins 5 and 4 and enclosing a white spot on termen at discal fold; cilia white with a black line at middle towards apex and below vein 5. Underside white, slightly irrorated with black except on inner areas; fore wing with blackish discoidal spot and slightly waved postmedial line, except on inner area, with a purplish fuscous shade beyond it; hind wing with blackish discoidal point, waved postmedial line except on inner area, some purple-brown suffusion beyond it towards costa with the faint pale waved subterminal line on it, and a sinuous blackish bar towards tornus.

Hab. IGN., 1 ♀ type; MADAGASCAR. *Exp.* 78 millim.

*7648. *Achæa simplex*. (Plate CCXVIII. fig. 9.)

Achæa simplex, Wlk. xxxiii. 960 (1865); Swinh. Cat. Het. Mus. Oxon. p. 135, fig.

♀. Head and thorax pale red-brown tinged with grey; pectus whitish; legs whitish tinged with brown; abdomen white, the

anal tuft tinged with red-brown. Fore wing pale red-brown with a greyish tinge; traces of a curved brown antemedial line; a faint fuscous spot at lower angle of cell; a very indistinct waved brown postmedial line, excurved to vein 3, then incurved; traces of a minutely waved dark subterminal line, excurved below costa and slightly at middle, the area beyond it somewhat browner. Hind wing with the basal half white, the inner area faintly tinged with brown; the terminal half fuscous with a white spot at apex, a spot on termen at discal fold, and an oblique bar from vein 2 to tornus. Underside of fore wing white, the costa tinged with red-brown, the terminal area broadly pale red-brown from costa to submedian fold; hind wing white slightly irrorated with brown except at base and on inner area, faint diffused brown postmedial and subterminal lines from costa to vein 3.

Hab. MORTY (Wallace), type ♂ ♀ in Mus. Oxon. *Eap.* 60 millim.

7649. *Achæa serva*.

Noctua serva, Fabr. Syst. Ent. p. 593 (1775); Hmps. Moths Ind. ii. p. 495.

Achæa fasciculipes, Wlk. xiv. 1400 (1858).

Head and thorax pale red-brown; pectus and legs pale greenish brown; abdomen grey-brown, the ventral surface darker towards

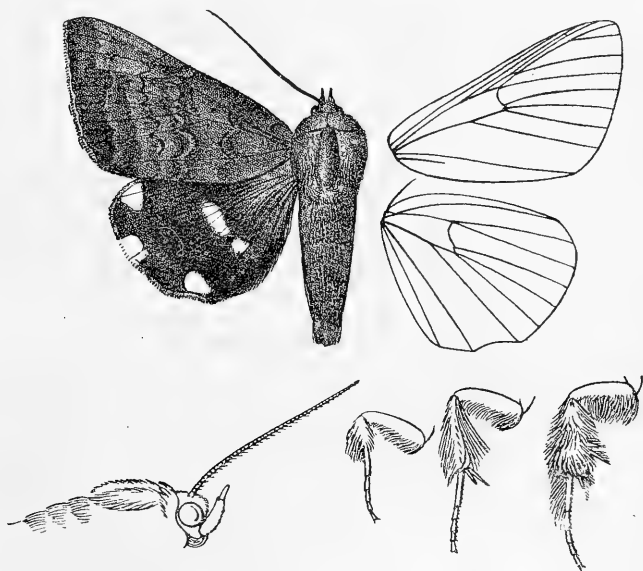


Fig. 123.—*Achæa serva*, ♂. 1.

extremity. Fore wing pale red-brown; antemedial line dark, oblique, waved; a black point in middle of cell; reniform small,

faintly defined by brown and with dark points above and below; a slight waved medial line, excurved beyond the cell; postmedial line slight, dark, waved, oblique to vein 6, then inwardly oblique; the terminal area brighter red-brown with a faint waved dark subterminal line; a series of minute black points before termen; cilia pale brownish ochreous, dark brown towards tornus. Hind wing fuscous black-brown, greyish towards base and inner margin; a narrow oblique white band from vein 6 just beyond middle to above tornus; a white spot at apex and larger spot on termen at discal fold; an oblique whitish subterminal bar in submedian interspace; cilia with fine whitish line at base, white tips on apical half, wholly white at the terminal spot. Underside greyish suffused with brown; fore wing with some fuscous suffusion in submedian interspace, discoidal lunule, curved postmedial line except on inner area with a large patch of black suffusion beyond it at middle; hind wing with indistinct medial line excurved beyond the cell, then oblique, and waved postmedial and subterminal lines.

Ab. 1. Fore wing purplish red-brown.

Ab. 2. Fore wing suffused with fuscous; a greyish apical patch on apical costal area.

Ab. 3. Fore wing with waved black marks on the antemedial line, on outer part of medial area and at middle of postmedial area.

Hab. MADAGASCAR; ASSAM, Shillong (*Rawlings*), 1 ♂; BOMBAY, Kanara (*Ward*), 1 ♀; BURMA, Irrawaddy R., Sheemagar (*Carpenter*), 1 ♀; MALACCA STRAITS, at sea (*Meade-Waldo*), 1 ♀, Bintang I. (*Nicoll*), 1 ♀; SINGAPORE (*Ridley*), 3 ♂, 7 ♀; BORNEO, at sea (*Meade-Waldo*), 1 ♀, Sandakan (*Pryer*), 1 ♀; JAVA (*Horsfield*), 1 ♀, Canmata I. (*Nicoll*), 1 ♂, 1 ♀; CELEBES (*Pfeiffer*), 1 ♂ type *fasciculipes*; DUTCH N. GUINEA, Arfak Mts., Ninay Valley (*Pratt*), 1 ♀, Snow Mts., Oetakwa R. (*Meek*), 1 ♂; BR. N. GUINEA, Ekeikei (*Pratt*), 2 ♀, Mt. Kebea (*Pratt*), 2 ♂, 1 ♀, Babooni (*Pratt*), 1 ♀; NEW HEBRIDES, Vatié, 1 ♂; AUSTRALIA, type in Banksian Coll.; QUEENSLAND, Brisbane (*Turner*), 2 ♂; N. AUSTRALIA, Port Darwin (*Buckland*), 1 ♂, 1 ♀; LOYALTY Is., Lifu (*Marshall*), 1 ♀; FRIENDLY Is., Vavau (*Eclipse Exp.*), 4 ♂. *Exp.* 62-80 millim.

7650. *Achæa mercatoria*.

Noctua mercatoria, Fabr. Syst. Ent. p. 604 (1775).

Noctua melicerta, Cram. Pap. Exot. i. p. 96, pl. 62. ff. C, D (1779), nec Drury.

Noctua vulpina, Fabr. Ent. Syst. iii. 2, p. 39 (1794); Hmps. Moths Ind. ii. p. 495.

Achæa ino, Hüb. Verz. p. 269 (1827).

Achæa accelerans, Wlk. xiv. 1401 (1858).

Achæa serva, Moore, Lep. Ceyl. iii. p. 164, pl. 169, ff. 4, 4 a, b (1884), nec Fabr.

Dysgonia violaceofascia, Saalm. Lep. Madag. p. 469, f. 196 (1891).

Head and thorax pale rufous; palpi, antennæ, pectus, and legs grey-brown; abdomen grey-brown, the ventral surface darker

towards extremity. Fore wing pale rufous tinged with purplish grey and slightly irrorated with black; a small black and white tuft of hair at base below the cell; antemedial line indistinct, dark, oblique, waved, very indistinct waved medial and postmedial lines, excurved to vein 4, then incurved; a very indistinct waved subterminal line; the terminal area rather brighter rufous with a series of minute black points before termen; cilia ochreous except at apex and towards tornus. Hind wing grey-brown; a narrow oblique white medial band from vein 6 to submedian fold, the area beyond it blackish with terminal white spots at apex and discal fold and a whitish subterminal bar in submedian interspace; cilia with some white at the spots and some blackish at vein 2. Underside grey suffused with brown and irrorated with black; fore wing with dark discoidal bar with some white beyond it, curved postmedial line with large blackish patch beyond it at middle, the termen whitish on apical half; hind wing with black discoidal point, curved medial line except on inner area, slightly waved postmedial line, traces of subterminal line, a series of black points before termen.

Ab. 1. Fore wing with the ground-colour darker.

Ab. 2. *accelerans*. Fore wing with the lines distinctly double and with lunulate fuscous marks on them.

Ab. 3. Fore wing with rather diffused oblique black medial band just beyond the cell.

Hab. SOKOTRA, Adho Dimellus (*O. Grant*), 1 ♂, 1 ♀; BR. E. AFRICA, Pemba I. (*Burt*), 1 ♂; PORTUGUESE E. AFRICA, Pungwe R. (*Marshall*), 1 ♂; NATAL, Durban (*Clark*), 1 ♂; MADAGASCAR; INDIA, 2 ♂ type *accelerans*; BOMBAY, 1 ♀, Kanara (*Ward*), 1 ♀; CEYLON, 1 ♂; SINGAPORE (*Ridley*), 1 ♂, 1 ♀; JAVA (*Horsfield*), 1 ♂, 5 ♀. *Exp.* 48-62 millim.

Larva. Colour variegated pale and dark violaceous and olive-grey with numerous dark violet-brown speckles; spiracles black; 4th somite with two dorsal violet-brown spots; 11th somite with pair of ochreous prominences; 1st pair of claspers aborted; head violet-brown in front. Food-plant, *Ricinus communis*.

Pupa. Deep purple-brown.

*7651. *Achæa seychellarum*. (Plate CCXVIII. fig. 10.)

Achæa seychellarum, Holl. Pr. U.S. Nat. Mus. xviii. p. 272 (1895).

Achæa immunda, Holl. Pr. U.S. Nat. Mus. xviii. p. 272 (1895).

♂. Head and thorax pale greyish rufous; antennæ brown; abdomen greyish ochreous. Fore wing ochreous rufous; a rather diffused waved black subbasal line from costa to submedian fold; a diffused waved oblique black antemedial line; a small blackish orbicular spot; reniform obscurely defined by blackish, elliptical; medial line blackish, slightly waved, excurved from costa to vein 4, then incurved, the interspaces beyond it suffused with black to the postmedial line, which is excurved from costa to vein 4, then incurved; subterminal line only defined by diffused waved black lines

before it between veins 4 and 2 and beyond it from vein 6 to inner margin; a series of black points before tornus; cilia whitish, fuscous at apex and towards tornus. Hind wing with the basal half whitish tinged with brown bounded by an obliquely curved white medial line defined on inner side by a dark line; the terminal half blackish with white patches on termen at apex, discal and submedian folds. Underside of fore wing with black discoidal bar and curved postmedial line from costa to vein 2 with some brown suffusion beyond it towards costa and diffused black patch at middle; hind wing whitish with some brown suffusion beyond the curved dark postmedial line from costa to vein 2.

Ab. 1. *immunda*. Fore wing greyer, the terminal area browner, the markings hardly traceable.

Hab. SEYCHELLES, Aldabra, type † in Coll. Holland. *Exp.* 50 millim.

***7652. *Achæa externesignata*.**

Ophisma externesignata, Saalm. Ber. Senck. Ges. 1880, p. 282; id. Lep. Madag. p. 465, f. 154.

♂. Head and thorax grey-brown; abdomen brownish grey. Fore wing red-brown tinged with purplish grey especially on medial area; antemedial line dark, angled outwards below costa, then incurved; a black point at lower angle of cell; medial line dark, waved, excurved beyond the cell, then incurved; postmedial line dark, dentate, excurved from costa to vein 4, a minute black spot beyond it on inner margin; subterminal line slight, dark, angled outwards at vein 7, a quadrate black patch before it on costal area. Hind wing blue-grey, the terminal area black, extending on costa to middle, narrowing towards tornus; white spots at apex and on termen at discal fold.

Hab. MADAGASCAR, Nossi-Bé. *Exp.* 52 millim This species is unknown to me.

***7653. *Achæa umbrigera*. (Plate CCXVIII. fig. 11.)**

Achæa umbrigera, Mab. Ann. Soc. Ent. Fr. 1897, p. 224.

♂. Head and thorax pale red-brown; abdomen darker brown. Fore wing pale red-brown tinged with grey and irrorated with blackish, the termen deep red-brown except at apex and towards tornus; traces of a sinuous dark subbasal line from costa to submedian fold; antemedial line dark, oblique, slightly sinuous; a black point in middle of cell; a rather oblique diffused black-brown medial shade; postmedial line dark defined on outer side by whitish, oblique and slightly sinuous to vein 6, then incurved, very slightly waved to vein 2; traces of a pale sinuous subterminal line; a series of black points before termen. Hind wing deep red-brown; a narrow oblique ochreous medial band between discal and submedian folds; the apical area blackish brown to vein 3, then with oblique band beyond the medial band to tornus; a small ochreous white spot at apex; a waved black terminal line; cilia ochreous

white at tips. Underside grey suffused and irrorated with brown; fore wing with dark discoidal patch, postmedial line slightly excurved to vein 4, then slightly incurved, a large dark brown patch beyond it at middle; hind wing with dark discoidal spot, indistinct diffused curved medial line, faint sinuous postmedial line, and double subterminal line, a series of black points before termen.

Hab. MAURITIUS, type ♂ in Coll. Mabilles. *Exp.* 54 millim.

7654. *Achæa trapezoides*. (Plate CCXVIII. fig. 1.)

Ophisma trapezoides, Guen. Maillard's Réunion, Lep. p. 47, pl. 23. f. 2 (1862).

Head, thorax, and abdomen pale rufous; antennæ grey-brown. Fore wing pale rufous with a faint greyish tinge and slightly irrorated with black; antemedial line slight, dark, obliquely excurved and slightly sinuous; a black point in middle of cell; reniform defined by a few blackish scales and with blackish points at upper and lower extremities; two indistinct medial lines, excurved beyond the cell, then incurved; postmedial line slight, brownish, slightly angled outwards below vein 6, then obliquely incurved; an indistinct waved brownish subterminal line bent outwards to apex; a series of minute black points before termen; cilia red-brown. Hind wing pale grey-brown; a narrow obliquely curved ochreous band from middle of costa to submedian fold, followed by a fuscous black band, broad to vein 2 and emitting an oblique spur from its outer edge to below apex; the apex with an ochreous patch and the termen and cilia ochreous towards apex; some minute black points before middle of termen. Underside brownish ochreous slightly irrorated with blackish; fore wing with blackish discoidal spot and curved postmedial line with black patch beyond it between vein 5 and submedian fold; hind wing with blackish discoidal point, indistinct curved slightly waved medial and postmedial lines, and double subterminal line.

Ab. 1. Fore wing with blue-white suffusion on costal area beyond the postmedial line.

Ab. 2. Fore wing with the reniform filled in with blackish.

Hab. NATAL, Durban (*Gooch, Clark*), 2 ♂, 1 ♀; MADAGASCAR (*Walsh*), 1 ♂; MAURITIUS (*Manders*), 1 ♂, Curepipe (*Tulloch*) 2 ♀; RODRIGUEZ (*Manders*), 1 ♀; RÉUNION. *Exp.* 52–64 millim.

7655. *Achæa faber*. (Plate CCXVIII. fig. 2.)

Achæa faber, Holl. *Psyche*, vii. p. 69, pl. 2. f. 21 (1894).

Head and thorax pale red-brown; pectus and legs ochreous brown; abdomen grey-brown, the ventral surface ochreous brown. Fore wing pale red-brown; antemedial line slight, dark, curved and minutely waved; a black point in middle of cell; reniform represented by a few black points at its upper and lower extremities; medial line slight, dark, excurved beyond the cell, then incurved; postmedial line brown slightly defined on outer

side by ochreous, slightly angled outwards below vein 6, then obliquely incurved; subterminal line indistinct, pale faintly defined on inner side by brown, slightly waved towards costa and incurved below vein 3; a series of black points before termen; cilia red-brown. Hind wing brownish ochreous, the basal and inner areas suffused with grey-brown; an ill-defined oblique brownish ochreous band from middle of costa to tornus; a large fuscous black subterminal patch from costa to vein 3 with an ochreous spot on it at apex; the termen and cilia ochreous towards apex; a series of black points before termen. Underside brownish ochreous slightly irrorated with black; fore wing with blackish discoidal bar and slightly curved postmedial line with diffused black patch before and beyond it between vein 5 and submedian fold; hind wing with slight discoidal point, two curved postmedial lines, and a subterminal line.

Ab. 1. Fore wing with the reniform filled in with blackish.

Hab. SIERRA LEONE (*Clements*), 1 ♂; GOLD COAST, Cape Coast Castle (*Higlett*), 1 ♀; S. NIGERIA, Old Calabar (*Cockburn, Sampson*), 1 ♂, 1 ♀, Ilesha (*Humfrey*), 1 ♂. *Exp.* 60–68 millim.

7656. *Achæa indeterminata*. (Plate CCXVIII. fig. 3.)

Ophisma indeterminata, Wlk. xxxiii. 955 (1865).

Ophisma demta, Möschl. Verh. zool.-bot. Ges. Wien, xxxiii. p. 305, pl. 16. f. 20 (1833).

Head, thorax, and abdomen pale rufous. Fore wing pale rufous with a faint greyish tinge, the postmedial area with a red-brown shade; antemedial line indistinct, brown, slightly incurved; two blackish discoidal points; postmedial line brown, faintly defined on outer side by whitish, excurved below costa, then obliquely incurved; traces of a waved subterminal line defining the outer edge of the red-brown area; a series of blackish points before termen. Hind wing brownish ochreous; a faint oblique dark postmedial line; a blackish subterminal shade, expanding to apex and narrowing to tornus; a series of minute black points before termen. Underside ochreous, the terminal areas tinged with red-brown; fore wing with greyish discoidal bar and postmedial line excurved below costa and with greyish fuscous patch beyond it at middle; hind wing with slight discoidal point, indistinct curved medial line, and double postmedial line.

Hab. NATAL, Estcourt (*Hutchinson*), 1 ♂, 1 ♀, Durban (*Gooch, Leigh, Clark*), 2 ♂, 3 ♀; CAPE COLONY, Caffraria. *Exp.* 54–58 millim.

Larva. Fawcett, Tr. Zool. Soc. xvii. p. 183, pl. viii. ff. 15, 16.

Pale yellow with numerous lines formed of pale striæ, the thoracic somites with dorsal stripe formed of brown striæ, the 1st somite with black reticulations in front; 4th and 5th somites with dorsal patches of black striæ; 11th somite with pair of small black-tipped prominences; a subdorsal series of black points; stigmata brown; subventral stripes of reticular brown striæ; thoracic somites with ventral brown stripe; head reticulated with black.

7657. *Achæa boris*.

Blosyris boris, Geyer, Zutr. Ex. Schmett. v. p. 42. ff. 973, 4 (1837).

Ophisma oblita, Wlk. xiv. 1375 (1858).

Ophisma senior, Wlk. xiv. 1376 (1858).

Ophisma mundissima, Wlk. xiv. 1376 (1858).

Achæa sinistra, Mab. C.R. Ent. Soc. Belg. xxiii. p. xix (1880).

Naxia debilis, Holl. Psyche, vii. p. 83, pl. iii. f. 4 (1894).

Head, thorax, and abdomen grey-brown. Fore wing grey-brown slightly irrorated with blackish, the terminal area grey except at apex; a curved dark subbasal line from costa to median nervure; antemedial line dark, waved, erect; an indistinct dark discoidal bar; medial line dark, excurved beyond the cell and angled inwards in submedian fold; postmedial line dark, waved, excurved to vein 4, then incurved; subterminal line dark, waved, excurved below costa, some dark suffusion before it; a series of minute black points before termen. Hind wing grey-brown; an indistinct obliquely curved dark medial line defined on outer side by a faint greyish band; a diffused blackish subterminal band extending to termen at apex and narrowing to tornus; termen and cilia grey except towards apex, with a series of minute black points before termen. Underside grey irrorated with brown; fore wing with faint dark discoidal spot and postmedial and subterminal lines with blackish suffusion between them at costa and middle and beyond the latter at middle; hind wing with black discoidal point, curved minutely waved medial and postmedial lines, and subterminal line diffused on inner side.

Ab. 1. Fore wing with the reniform filled in with blackish.

Ab. 2. *mundissima*. Fore wing paler and redder brown.

Hab. SIERRA LEONE (*Morgan*), 1 ♂ type *mundissima*; GOLD COAST; Aburi (*Johnston*), 1 ♀; S. NIGERIA, Lagos, Ebute Meta (*Boag*), 1 ♂, 2 ♀, Old Calabar (*Cockburn*), 3 ♀, Onitsha, 1 ♀; N. NIGERIA, Bosso (*Jones*), 1 ♂; CONGO, Kambove (*Neave*), 1 ♂; UGANDA, Entebbe (*Minchin*), 1 ♂; NATAL (*Gueinzius*, *Gooch*, *Clark*), 2 ♂, 1 ♀; MADAGASCAR, type † *sinistra* in Coll. Mabillo. *Exp.* 52–58 millim.

7658. *Achæa finita*.

Ophisma finita, Guen. Noct. iii. p. 242 (1852).

Ophisma infinita, Guen. Noct. iii. p. 242 (1852).

Ophisma limbata, Feld. Reis. Nov. pl. 116. f. 6 (1874).

Head, thorax, and abdomen grey-brown. Fore wing slightly irrorated with blackish, the terminal area grey except at apex; a sinuous dark subbasal line from costa to submedian fold; antemedial line dark, waved, nearly erect; two black discoidal points on a faint ochreous brown bar; medial line dark, waved, excurved beyond the cell, then incurved; postmedial line dark, dentate, excurved to vein 4, then oblique; subterminal line defining the inner edge of the grey area, bent outwards to apex, then straight;

a series of minute blackish points before termen. Hind wing grey-brown; a faint diffused oblique bluish white line from middle of costa to above tornus; the terminal area fuscous brown with a small whitish spot at apex; a waved blackish line just before termen from apex to vein 2, some bluish white before it at middle and the termen bluish white; cilia bluish white except towards tornus. Underside grey suffused with brown; fore wing with faint discoidal spot, a brown band between the postmedial and subterminal lines except on inner area; hind wing with dark discoidal striga, curved, minutely waved medial and postmedial lines and dentate whitish subterminal line.

Ab. 1. *infinita*. Fore wing with the terminal area brown.

Hab. SIERRA LEONE, Batkanu (*Fitzgerald*), 1 ♀; N. NIGERIA, Bauchi, Panyam (*Fox*), 1 ♀; CONGO (*Curror*), 1 ♂; BR. E. AFRICA, Eb Urru (*Betton*), 1 ♂; UGANDA, Ruwenzori (*Wollaston*), 2 ♀; MASHONALAND, Salisbury (*Marshall*), 2 ♂, 2 ♀; LORENÇO MARQUES, Delagoa Bay (*Junod*), 1 ♀; TRANSVAAL, White R. (*Cooke*), 1 ♂; NATAL, Durban (*Gueinzins, Leigh, Clark*), 2 ♂, 2 ♀; CAPE COLONY, Transkei (*Miss F. Barrett*), 1 ♂; MADAGASCAR (*Corey*), 1 ♂; MAURITIUS, Curepipe (*Tulloch*), 2 ♂; BOURBON. *Exp.* 60-66 millim.

7659. *Achæa albicilia*. (Plate CCXVIII. fig. 4.)

Ophisma albicilia, Wlk. xiv. 1374 (1858).

Ophisma ebenavi. Saalm. Ber. Senck. Ges. 1880, p. 281; id. Lep. Madag. p. 464, f. 153 (1891).

♀. Head and thorax pale red-brown; pectus, legs, and abdomen grey-brown. Fore wing pale red-brown tinged with greyish; a faint curved brown subbasal line from costa to submedian fold; antemedial line indistinct, dark, oblique, waved; a slight dark discoidal striga with black points at its upper and lower extremities; an indistinct waved medial line, oblique to vein 4, then incurved; a dentate dark postmedial line with white points at the extremities of the teeth, excurved to vein 4, then incurved, some white points beyond it on costa; a very indistinct rather maculate dark subterminal line; a series of black points before termen; cilia creamy white except at apex and towards tornus. Hind wing grey-brown; a faint oblique whitish medial line from below middle of costa to vein 2; terminal area suffused with fuscous from costa to vein 2; a slight white mark on termen at discal fold; cilia white except at apex and towards tornus. Underside grey suffused with brown; fore wing with faint dark discoidal spot, and postmedial and subterminal lines with a patch of fuscous suffusion from the former at middle to beyond the latter; hind wing with blackish discoidal point, curved minutely waved medial and postmedial lines and very indistinct waved whitish subterminal line, a series of black points before termen.

Hab. SIERRA LEONE, 1 ♀ type; S. NIGERIA, Lagos, Ebute Meta (*Boag*), 1 ♀, Old Calabar (*Sampson*), 2 ♀, Onitsha, 1 ♀, Ilesha (*Hunfrey*), 1 ♀; MADAGASCAR. *Exp.* 58-64 millim.

7660. *Achæa diplographa*, n. sp. (Plate CCXVIII. fig. 5.)

♀. Head and thorax dull rufous; palpi, antennæ, pectus, legs and abdomen grey-brown. Fore wing dull rufous suffused in parts with grey-brown, a minute tuft of scales tipped with white below base of cell; an indistinct curved subbasal line from costa to submedian fold; antemedial line double and filled in with grey-brown, waved and obliquely curved; a black point in middle of cell; reniform small, faintly defined and with some black points on its edges; medial line indistinctly double, waved, excurved to vein 4 beyond the cell, then incurved; postmedial line indistinctly double, waved, curved, some ochreous points beyond it on costa; subterminal line rather diffused, dark, waved; terminal area rather darker and with faint pale striæ; a series of minute blackish points before termen; a fine dark terminal line and pale line at base of cilia. Hind wing grey-brown; a faint obliquely curved narrow greyish band from middle of costa to above tornus; terminal area fuscous from costa to vein 2, the termen slightly grey towards apex and a fine dark terminal line from apex to vein 2; cilia whitish at base towards apex. Underside grey suffused with brown; fore wing with indistinct dark discoidal spot with some whitish beyond it and curved postmedial line; hind wing with slight discoidal striga and curved medial and postmedial lines.

Hab. COMORO Is., Mayotta (*Meade-Waldo*), 1 ♀ type. *Exp.* 52 millim.

7661. *Achæa sordida*. (Plate CCXVIII. fig. 6.)

Ophisma sordida, Wlk. xxxiii. 955 (1865).

Ophisma pretoriæ, Distant, Naturalist in Transvaal, p. 239, pl. ii. f. 7 (1897).

Head, thorax, and abdomen grey-brown. Fore wing grey-brown; a small tuft of white-tipped scales below base of cell; antemedial line dark faintly defined on outer side by greyish, oblique, waved; a faint ochreous brown discoidal bar with black points above and below; medial line double, waved, excurved from costa to vein 4 beyond the cell, then incurved; postmedial line indistinctly double, dentate, excurved to vein 4, then incurved; the terminal area slightly darker with traces of a dark line before termen; cilia with fine pale lines at base and middle. Hind wing grey-brown, the terminal area tinged with fuscous except at tornus; a faint obliquely curved greyish line from middle of costa to near tornus; a small whitish patch at apex; a dark terminal line slightly defined on inner side by blue-grey at middle and by an oblique grey striga in submedian interspace; cilia with fine pale line at base followed by a dark line. Underside grey-brown; fore wing with slight dark discoidal bar, slight medial line, and postmedial and subterminal lines with dark suffusion between them except on inner area; hind wing with dark discoidal point,

curved medial and postmedial lines, and slight waved whitish subterminal line with some brown suffusion before it.

Hab. UGANDA, Ruwenzori (*Wollaston*), 1 ♀; ANGOLA, Bengella (*Bergman*), 1 ♀; MASHONALAND, Salisbury (*Marshall*), 1 ♂; TRANSVAAL (*Ross*), 2 ♀, Piet Retief (*Crawshay*), 1 ♂, 1 ♀, Pretoria (*Distant*), 1 ♂, 2 ♀ type *pretoriae*, Johannesburg (*Clark*), 1 ♂, Potchefstroom, 1 ♂; NATAL, Newcastle, 1 ♀, Durban (*Leigh, Clark*), 2 ♀; BASUTOLAND, Maseru (*Crawshay*), 2 ♂; CAPE COLONY, Delfontein (*Sloggett*), 1 ♂, Transkei (*Miss F. Barrett*), 1 ♂, 1 ♀. *Exp.* 54-60 millim.

7662. *Achæa thermopera*, n. sp. (Plate CCXVIII. fig. 12.)

♀. Head and thorax pale red-brown; pectus, legs, and abdomen grey-brown. Fore wing grey-brown tinged with red-brown and irrorated with fuscous, a semi-elliptical chocolate-brown patch on apical part of costa; a rather oblique sinuous dark antemedial line; a small indistinct blackish annulus in upper part of middle of cell; reniform indistinctly defined by blackish, small with irregular outline, an oblique dark shade from it to inner margin; postmedial line indistinct, dark, crenulate, oblique to vein 6 and incurved below vein 4; some pale points on costa on the chocolate patch; an indistinct waved red-brown subterminal line from vein 4 to inner margin; a series of black and whitish points just before termen. Hind wing grey-brown; the terminal area suffused with fuscous except towards tornus; a slightly waved reddish brown subterminal line and some reddish brown on termen except towards costa; a slight whitish patch on costa just before apex; cilia with a fine pale line at base and whitish patch at discal fold. Underside grey-brown; fore wing with diffused white postmedial band except at costa with blackish suffusion before and beyond it.

Hab. S. NIGERIA, Old Calabar (*Cockburn*), 1 ♀ type. *Exp.* 60 millim.

7663. *Achæa phæobasis*, n. sp. (Plate CCXVIII. fig. 13.)

Head and thorax grey-brown; pectus, legs, and abdomen pale grey-brown. Fore wing pale grey-brown irrorated with dark brown, the basal area suffused with blackish brown, its outer edge somewhat oblique and sinuous; a black point in middle of cell; a slight brown discoidal lunule with black points above and below and on its inner edge; postmedial line slight, dark, oblique to vein 6, then dentate, incurved below vein 4, a conical patch of black-brown suffusion beyond it on costal area with some pale points on costa; subterminal line dark, diffused, excurved below vein 7, then oblique; a series of blackish points before termen; a fine dark terminal line and dark line at middle of cilia. Hind wing grey-brown with an indistinct diffused dark subterminal shade. Underside of fore wing with dark discoidal spot, a white band beyond it from below costa to tornus, its inner edge bent

outwards at vein 2; hind wing with slight diffused dark postmedial and subterminal lines between veins 4 and 1 defined on outer side by whitish.

Hab. SUDAN, White Nile, Gabt el Meghahid (*Dunn*), 1 ♀ type; UGANDA, Entebbe (*Neave*), 1 ♂, 1 ♀, Kafu R. (*Neave*), 2 ♂, L. Isolt (*Neave*), 1 ♂. *Exp.* 48 millim.

7664. *Achæa albifimbria*. (Plate CCXVIII. fig. 14.)

Ophiusa albifimbria, Wlk. Char. Undescr. Lep. Het. p. 53 (1869).

Naxia apiciplaga, Holl. Ent. News Philad. v. p. 59, pl. ii. f. 3 (1894).

Head and thorax red-brown; palpi, pectus, legs, and abdomen grey-brown, the tarsi with pale rings. Fore wing bright red-brown variegated with fulvous red, especially on inner half of medial area and on postmedial area except towards costa; subbasal line rather diffused, double, brown filled in with fulvous red, from costa to submedian fold; antemedial line double, rather diffused, brown filled in with fulvous red, oblique, sinuous, a brown point beyond it in cell; a slight dark discoidal striga; medial line indistinct, dark, waved, excurved beyond the cell, then oblique; postmedial line dark, dentate, oblique and defined on outer side by white from costa to vein 6, then inwardly oblique and with a few blue-white scales on its outer edge, a conical grey-brown patch beyond it on costal area with some blue-white on its inner edge and below, and some white points on costa; subterminal line white and minutely dentate at costa, then bent inwards and blue-white to vein 7, then indistinct, brown, waved, with some fulvous red before it beyond the conical patch, excurved at middle; a series of black points before termen; cilia white at tips except towards tornus. Hind wing dark reddish brown; a faint oblique paler postmedial line from vein 6 to submedian fold; the termen pale red-brown with some black points before it at middle; cilia yellowish towards apex, then white at tips to submedian fold. Underside brown slightly irrorated with whitish; fore wing with curved dark postmedial line, the termen grey except towards tornus; hind wing with dark discoidal bar, indistinct medial and postmedial lines, and diffused subterminal line.

Ab. 1. Fore wing less variegated with yellow.

Hab. SIERRA LEONE (*Clements*, *Cator*), 5 ♂, 2 ♀, Batkanu (*Fitzgerald*), 1 ♀; S. NIGERIA, Ilesha (*Humphrey*), 1 ♂, 1 ♀; UGANDA, Entebbe (*Minchin*), 1 ♀; *HAB. IGN.*, 1 ♀ type. *Exp.* 54–60 millim.

7665. *Achæa xanthodera*. (Plate CCXVIII. fig. 15.)

Naxia xanthodera, Holl. Psyche, vii. p. 83, pl. iii. f. 3 (1894).

♀. Head and thorax rufous mixed with yellowish; abdomen grey-brown; palpi, pectus, legs, and ventral surface of abdomen

pale brown mixed with whitish. Fore wing rufous mixed with yellowish and with somewhat yellower patches on inner postmedial area and terminal area below apex, the costal area greyish; an indistinct obliquely curved waved dark antemedial line; a nearly straight somewhat diffused dark medial line; postmedial line indistinct, double, minutely waved, excurved from costa to vein 4, then incurved, the lines widely separated; traces of a double waved subterminal line; a series of dark points before termen on slight yellowish marks. Hind wing dark brown, the termen greyish; the underside brown suffused with grey, an indistinct dark curved postmedial line and double subterminal line.

♂. Fore wing with some white suffusion on costal area towards apex; hind wing with the termen reddish ochreous.

Hab. S. NIGERIA, Ilesha (*Humfrey*), 1 ♂; GABOON, Ogové R., type ♀ in Coll. Holland. *Exp.* 48 millim.

SECT. III. Mid tibiæ of male not dilated and without groove containing a tuft of hair.

- A. (*Achæa*.) Hind tarsi of male with the 1st joint fringed with hair above.
- a. Fore wing with the antemedial line oblique and incurved from costa to inner margin..... *lienardi*.
 - b. Fore wing with the antemedial line oblique to submedian fold and angled inwards at vein 1 *catella*.
 - c. Fore wing with the antemedial line oblique and sinuous throughout.
 - a'. Fore wing with black streaks before the postmedial line in the interspaces between veins 7 and 2 *ædipodina*.
 - b'. Fore wing without black streaks before the postmedial line..... *melicerta*.

7666. *Achæa lienardi*.

Ophiusa lienardi, Boisd. Faun. Ent. Madag., Lép. p. 102, pl. 15. f. 5 (1833); Holl. Ent. News Philad. v. p. 59, pl. ii. f. 4.

Achæa chamæleon, Guen. Noct. iii. p. 249 (1852).

Ophiusa cerbera, Guen. Noct. iii. p. 250 (1852).

Ophiusa zabulon, Guen. Noct. iii. p. 250 (1852).

Achæa spectatura, Wlk. xiv. 1393 (1858).

Achæa ophisoides, Wlk. Proc. Nat. Hist. Soc. Glasg. i. p. 357 (1873).

Achæa partita, Wlk. Proc. Nat. Hist. Soc. Glasg. i. p. 358, pl. 6. f. 8 (1873).

Achæa hilaris, Plotz, Stett. Ent. Zeit. xli. p. 299 (1880).

Achæa locra, Plotz, Stett. Ent. Zeit. xli. p. 299 (1880).

(*zabulon*). Head and thorax red-brown; abdomen greyish brown, the ventral surface irrorated with whitish. Fore wing red-brown; a slight sinuous brown subbasal line from costa to submedian fold; antemedial line indistinct, oblique, almost straight; a black point in middle of cell and two discoidal points; a faint rather diffused medial line, slightly excurved beyond the cell, then incurved; postmedial line dark faintly defined on outer side by whitish, dentate, oblique to vein 6 and incurved below

vein 4; the costal area slightly darker towards apex with two yellow points on costa; subterminal line indistinct, dark, incurved, arising from termen below apex; a series of black points just before termen; cilia with a fine whitish line at base. Hind wing grey-brown, the terminal area black-brown except towards tornus; a faint oblique whitish bar beyond lower angle of cell; a white spot at apex, a spot on termen and cilia at discal fold, and a slight mark at submedian fold. Underside grey-brown, the terminal areas suffused with fuscous; fore wing with oblique white band from below costa beyond middle to tornus and the termen blue-grey on apical half with curved inner edge; hind wing with dark discoidal striga, curved medial and postmedial lines and waved subterminal line slightly defined on outer side by white, the termen irrorated with white to vein 2 with a series of black points before it.

Ab. 1. Head, thorax, and fore wing grey-brown with a slight olive tinge.

Ab. 2. *cerbera*. Fore wing with chocolate-brown patch on costa before apex and small spot at tornus.

Ab. 3. *partita*. Fore wing with the basal area dark red-brown, some red-brown suffusion before subterminal line.

Ab. 4. Similar, but fore wing with dark patch on costa before apex and small spot at tornus.

Ab. 5. Fore wing with the antemedial line black and rather diffused on inner side.

Ab. 6. *spectatura*. Fore wing with more or less complete black band before the antemedial line except at inner margin, the reniform defined by black, some dark suffusion before and beyond the subterminal line.

Ab. 7. *chamæleon*. Similar, but fore wing with the medial area irrorated and in parts suffused with black.

Ab. 8. *lienardi*. Similar, but fore wing with the whole medial area and a patch on costa towards apex fuscous black.

Ab. 9. Similar, but fore wing with the medial area and the patch on costa towards apex deeper black, a black band before the antemedial line.

Ab. 10. *ophismoides*. Fore wing with the medial area irrorated and suffused with white.

Hab. SIERRA LEONE (*Morgan, Mitford*), 1 ♂, 1 ♀, Freetown (*Quinton*), 2 ♀; GOLD COAST, Accra (*Higlett*), 1 ♀, Cape Coast Castle (*Higlett*), 3 ♂, 2 ♀, Ashanti, 1 ♂, 1 ♀; S. NIGERIA, Lagos, Ebute Meta (*Boag*), 2 ♂, 1 ♀, Old Calabar (*Crompton*), 2 ♀, Sapele (*Sampson*), 2 ♂, 2 ♀, Onitsha, 1 ♀, Vivet (*Dudgeon*), 1 ♂, Okigwi (*Dudgeon*), 1 ♂, Bende (*Simpson*), 1 ♀, Ilesha (*Humfrey*), 1 ♂; CONGO (*Curror, Marsden*), 2 ♂, 5 ♀ types *ophismoides* and *partita*, Katanga, Kambove (*Neave*), 1 ♂, 1 ♀; SUDAN, White Nile, Gabt el Meghahid (*Dunn*), 5 ♂, 5 ♀; BR. E. AFRICA, Athiya-Mawe (*Betton*), 4 ♂, 3 ♀, Kilindini (*Betton*), 2 ♂; UGANDA, Bugoma (*Ladbury*), 1 ♂, Ruwenzori (*Wollaston*), 1 ♂; GERM. E. AFRICA, Usagara (*Neave*), 1 ♂; BR. C. AFRICA, Mlanji Boma

(*Neave*), 1 ♂, Blantyre (*Neave*), 1 ♂, Chiromo (*Neave*), 1 ♂; MOZAMBIQUE, Beira (*Sheppard*), 1 ♀; LORENÇO MARQUES, Delagoa Bay (*Muir*), 1 ♀; MASHONALAND, Umtali (*Marshall*), 2 ♂; TRANSVAAL (*Marshall*), 1 ♂, Lydenburg, 1 ♀; NATAL (*Marshall*), 1 ♂, Estcourt (*Hutchinson*), 3 ♀, Durban (*Gueinzus*, *Trimen*, *Distant*, *Ross*, *Leigh*, *Meade-Waldo*), 7 ♂, 6 ♀ type *spectatura*; CAPE COLONY (*Sir A. Smith*), 2 ♂, 1 ♀, Grahamstown (*Wilde*), 1 ♂, E. London (*Cohen*), 1 ♂; MADAGASCAR. *Exp.* 46-68 millim.

7667. *Achæa catella*. (Plate CCXVIII. fig. 16.)

Achæa catella, Guen. Noct. iii. p. 247 (1852).

Head and thorax grey-brown mixed with whitish; pectus, legs, and abdomen pale grey-brown. Fore wing grey-brown irrorated with blackish; subbasal line dark brown, waved, from costa to submedian fold; antemedial line fine, blackish, oblique, waved; postmedial line fine, black, minutely waved and with slight black streaks before it in the interspaces between veins 7 and 2, indistinctly double except towards costa, oblique to vein 6 towards subterminal line, then curved, and incurved below vein 3; a faint oblique dark streak from apex to the postmedial line at vein 6; a faint minutely waved whitish subterminal line, excurved at vein 7; a slight waved blackish terminal line with points at the interspaces; cilia with fine whitish line at base followed by a blackish line, the tips reddish brown. Hind wing grey-brown to the narrow oblique bluish white band from below middle of costa to above inner margin towards tornus; the rest of wing fuscous black with small white spot at apex, larger spot on termen at discal fold and oblique bar from vein 2 to termen at vein 1; cilia white with dark line near base towards apex and at middle, the tips reddish brown at middle. Underside grey irrorated with brown; fore wing with white postmedial band between veins 6 and 2 with black suffusion before, below and beyond it; hind wing with curved postmedial line and minutely waved subterminal line with some dark suffusion before it and a blackish patch above tornus.

Ab. 1. Fore wing with the ante- and postmedial areas tinged with rufous.

Ab. 2. Fore wing with blackish suffusion before the ante- and postmedial lines.

Ab. 3. Fore wing with the inner half of medial area whitish.

Hab. ST. HELENA (*Wollaston*), 1 ♂, 1 ♀; S. NIGERIA, Leaba (*Christy*), 1 ♂; CONGO (*Marsden*), 1 ♀; NUBIA, Khor Ambukal (*Wood-Jones*), 1 ♀; SUDAN, Suakim (*B. Fletcher*), 1 ♀, Port Sudan (*Mrs. Waterfield*), 2 ♂, 5 ♀, White Nile, Gabt el Meghahid (*Dunn*), 1 ♂, 2 ♀; ABYSSINIA, Atbara (*Gerrard*), 1 ♀; ERITREA (*Barker*), 1 ♀; ADEN (*Yerbury*, *Mathew*, *Meade-Waldo*), 2 ♂, 2 ♀; S.W. ARABIA, El Kubar (*Bury*), 1 ♀; SOKOTRA, Hadibu Plain (*O. Grant*), 1 ♂, 1 ♀; BR. E. AFRICA, Taveta (*Rogers*), 1 ♀,

Aiwca (*Betton*), 1 ♀, Muani (*Betton*), 1 ♂, Machakos (*Crawshaw*), 1 ♂; UGANDA, Ruwenzori (*Wollaston*), 1 ♀; GERM. E. AFRICA, Usangu (*Neave*), 1 ♂, Usagara, Kilossa (*Neave*), 1 ♀; BR. C. AFRICA, Blantyre (*Neave*), 2 ♂; N.E. RHODESIA, Serenje (*Neave*), 2 ♂; MASHONALAND, Umtali (*Marshall*), 1 ♀, Salisbury (*Marshall*), 1 ♂; RHODESIA, Bulawayo (*Marshall*), 1 ♂; BECHUANALAND, N'Gami (*Lugard*), 2 ♀; TRANSVAAL (*Janse*), 1 ♂, Waterburg (*Wilde*), 1 ♂, Lydenburg, 1 ♂, Piet Retief (*Mrs. Mercer*), 1 ♀; NATAL, Gadzima (*Marshall*), 2 ♂; ORANGE R. COLONY, Bloemfontein (*Eckersley*), 1 ♀; RODRIGUEZ (*Gulliver, Manders*), 1 ♂, 2 ♀. *Exp.* 48–64 millim.

7668. *Achæa ædipodina*. (Plate CCXVIII. fig. 17.)

Achæa ædipodina, Mab. Bull. Soc. Philom. (7) iii. p. 140 (1879).

Head and thorax pale red-brown mixed with grey; pectus and legs grey irrorated with brown; abdomen pale grey-brown. Fore wing pale grey-brown irrorated with black; basal area suffused with rufous; subbasal line black, from costa to vein 1, slightly excurved below costa; antemedial line double, the outer line black, the inner line red-brown, slightly excurved below costa, then oblique to submedian fold and incurved at vein 1; reniform a small white lunule with black points at its upper and lower extremities; postmedial line double, black, the outer line red-brown towards costa, the inner line minutely dentate and with black streaks beyond it in the interspaces between veins 7 and 2, oblique to vein 6 towards the subterminal line, then curved and incurved below vein 3, the area beyond it bright rufous to the subterminal line, forming a large patch on costal area with some white points on costa and black streaks below it, a small white spot on the outer edge of the line at vein 2; subterminal line indistinct, whitish, waved, slightly incurved below costa, the area beyond it white irrorated with black except at apex; a fine waved black terminal line with points in the interspaces; cilia grey, rufous at tips. Hind wing with the basal area grey-brown to the narrower oblique slightly sinuous white band from below middle of costa to inner margin near tornus; the rest of wing black-brown with a small white spot at apex, larger spot on termen at discal fold and somewhat oblique bar from vein 2 to termen at vein 1; cilia white, brown at base towards apex and with brown line near tips at middle. Underside grey irrorated with brown; fore wing with white patch on basal inner area, postmedial band between veins 6 and 2 with black suffusion before it and large black patch beyond it, and a white patch at tornus, the termen whitish irrorated with black; hind wing with slight curved minutely waved medial and postmedial lines, and faint waved whitish subterminal line with black patch before it above tornus.

Hab. MADAGASCAR, Betsileo (*Cowan*), 2 ♀. *Exp.* 70–76 millim. Type † ♂ in Coll. Mabile.

7669. *Achæa melicerta*.

Noctua melicerta, Drury, Ill. Exot. Ins. i. p. 42, pl. 23. f. 1 (1770); Moore, Lep. Ceyl. iii. p. 163, pl. 168. ff. 2 *a*, *b*; Hmps. Moths Ind. ii. p. 494. *Noctua tigrina*, Fabr. Spec. Ins. ii. p. 218 (1781). *Catocala traversii*, Fereday, Trans. N.Z. Inst. ix. p. 457, pl. 17 (1877). *Achæa argilla*, Swinh. A. M. N. H. (7) viii. p. 132 (1901). *Ophiura ekeikei*, Beth.-Baker, Nov. Zool. xiii. p. 256 (1906).

Head and thorax rufous; palpi, pectus, legs, and abdomen grey-brown. Fore wing rufous tinged with grey especially on medial area and on termen below apex; subbasal line red-brown, waved, from costa to submedian fold; antemedial line red-brown, oblique, sinuous, defined on outer side by whitish; traces of a narrow reniform defined by whitish and with black point at upper extremity; a faint double reddish minutely waved medial line,

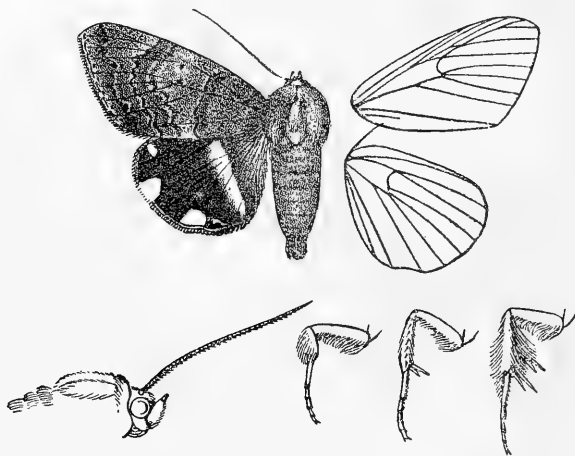


Fig. 124.—*Achæa melicerta*, ♂. $\frac{1}{2}$.

oblique to vein 4, then incurved; postmedial line indistinct, double, red-brown, oblique and slightly defined on outer side by white, to vein 6, then slightly waved, excurved to vein 4, then oblique, some pale points beyond it on costa; traces of a waved red-brown subterminal line; a series of slight black points before termen. Hind wing grey-brown to the narrow oblique bluish white band from below middle of costa to above inner margin towards tornus; the rest of wing blackish, with white spot at apex, larger spot on termen at discal fold, irregular mark in submedian fold and slight mark at tornus; cilia greyish brown, white at the discal and submedian patches. Underside grey irrorated with brown; fore wing with some white on basal inner area, an oblique

white band from vein 6 beyond the cell to tornus, strongly constricted at submedian fold and with black suffusion before and beyond it; hind wing with minutely waved postmedial and subterminal lines, the latter with a blackish patch before it above tornus.

Ab. 1. Fore wing with the lines black, the medial and terminal areas suffused with lilacine grey, the costal patch beyond the postmedial line lilacine grey and defined by black.

Ab. 2. Fore wing nearly uniformly suffused with dark red-brown.

Ab. 3. *argilla*. Head, thorax, abdomen, and fore wing brownish white, the last with the markings almost obsolete; hind wing with the basal area whitish.—S. & W. Australia.

Hab. PERSIAN GULF, Ormara (*Cumming*), 1 ♂; PUNJAB, Kulu, Sultanpur (*G. Young*), 1 ♂, 2 ♀, Dharmasāla (*Hocking*), 3 ♂, 6 ♀, Campbellpur (*Yerbury*), 1 ♀, Jubbulpur (*F. Butler*), 2 ♀, Allahabad, 2 ♂; SIKHIM, 1 ♀; ASSAM (*Badgley*), 1 ♂, 1 ♀, Khâsis (*Watson*), 1 ♂, Silhet (*Stainsforth*), 1 ♀, Cachar (*Grant*), 1 ♀; BENGAL, Durbunga (*Maries*), 1 ♀, Calcutta, 2 ♀, Ganjam, 1 ♂; BOMBAY, 1 ♀, Mhow (*Swinhoe*), 1 ♂, Kanara (*Ward*), 1 ♀; MADRAS, 2 ♂, 1 ♀, Shevaroy's (*Morris*), 1 ♀, Nilgiris (*Hampson*), 1 ♂; CEYLON (*Templeton*), 2 ♀; BURMA, Moulmein (*Clerk*), 1 ♂, 2 ♀; ANDAMANS, 1 ♀; SINGAPORE (*Ridley*), 2 ♀; SUMATRA, Ludeking, 1 ♀; PHILIPPINES, LUZON, San Fernando (*McGregor*), 1 ♂; FORMOSA, Takow (*Hobson*), 1 ♀; JAVA (*Horsfield*), 2 ♂, 5 ♀; CHRISTMAS I. (*Andrews*), 2 ♀; COCOS-KEELING I. (*Wood-Jones*), 1 ♂, 3 ♀; TIMOR (*Mathew*), 1 ♀; BR. N. GUINEA, Ekeikei (*Pratt*), 2 ♀; N. AUSTRALIA, Cartier I. (*J. J. Walker*), 1 ♀, Port Darwin (*Buckland*), 3 ♂, Alexandra (*Stalker*), 2 ♀; QUEENSLAND, Moreton Bay (*Diggles*), 1 ♀, Brisbane (*Turner, Lyell*), 3 ♀; W. AUSTRALIA, Towranna Plains; S. AUSTRALIA, Adelaide (*J. J. Walker*), 1 ♂; N. ZEALAND; MARSHALL IS. (*Mathew*), 1 ♂, 1 ♀; GILBERT IS. (*Woodford*), 1 ♀, Apia (*de la Garde*), 1 ♀; ELLICE IS. (*Whitmee*), 1 ♀; NEW HEBRIDES (*Mathew*), 1 ♀; FRIENDLY IS., Vavau (*Eclipse Exp.*), 2 ♀; UNION IS., Fakaala (*Lister*), 5 ♀; TAHITI (*Mathew*), 2 ♀; MARQUESAS (*J. J. Walker*), 2 ♂, 2 ♀, Nuka-hiva I. (*J. J. Walker*), 1 ♀, 2 ♂, Tongatabu (*Lister*), 1 ♀. *Exp.* 52–70 millim. Type † *ekeikei* in Coll. Bethune-Baker.

Larva. Bluish grey speckled with blue-black or black-brown; lateral and sublateral yellowish stripes with a blue-grey line between them; a dorsal black stripe edged with reddish white spots between 4th and 5th somites; a pair of dorsal red tubercles on anal somite; spiracles and fore legs red; head striped with black; the 1st pair of claspers aborted. Food-plant, *Ricinus communis*.

Pupa rolled in a leaf.

B. (*Geria*.) Hind tarsi of male with the 1st joint not fringed with hair above.

7670. *Achæa ablunaris*.

Ophisma ablunaris, Guen. Noct. iii. p. 237 (1852). *Col.*

Geria restituta, Wlk. xiv. 1366 (1858). *S. D. 50. 4. 1. 1.*

Remigia indistincta, Wlk. xxxiii. 1009 (1865). *Col.*

Ophismia hilaris, Mösch. Abh. Senck. Ges. xvi. p. 202 (1890).

Head and thorax ochreous tinged with rufous and irrorated with a few black scales; palpi whitish in front and blackish behind towards base; antennæ white in front towards base; pectus and legs whitish irrorated with brown; abdomen white dorsally tinged with ochreous, ventrally slightly irrorated with brown. Fore wing ochreous tinged with rufous and irrorated with blackish, the

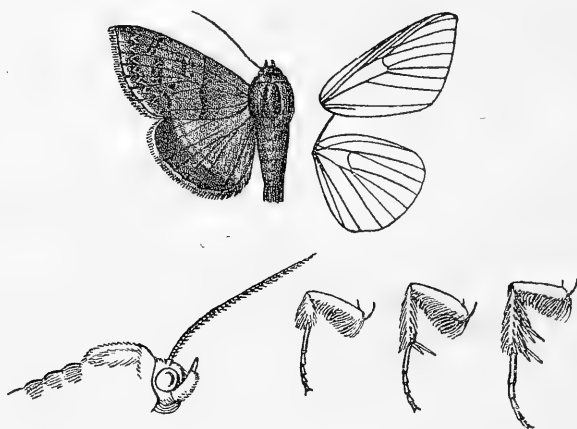


Fig. 125.—*Achæa ablunaris*, ♂. 1.

termen grey-white; a rather oblique fuscous grey medial line slightly defined on outer side by whitish; reniform a slight whitish spot faintly defined by fuscous; traces of a waved postmedial line, excurved to vein 4, then incurved; subterminal line double, brownish, lunulate, incurved at discal fold and excurved at middle, followed by a dentate whitish line faintly defined on each side by brown; a series of minute black points before termen; a fine brown terminal line; cilia whitish tinged with brown. Hind wing ochreous tinged with rufous; a double slightly curved postmedial line with brown suffusion beyond it; the termen grey-white at middle with some minute black points before it; a fine brown terminal line; cilia whitish tinged with brown. Underside white irrorated with blackish; fore wing with the cell and inner area tinged with yellow, a blackish discoidal spot, a brown shade

between the waved postmedial and subterminal lines except on inner area; hind wing with blackish discoidal spot and slight waved postmedial and subterminal lines anastomosing below costa.

Hab. CUBA, 1 ♂; HAITI (*Tweedie*), 2 ♂ type *restituta*; COLOMBIA, Bogotá (*Birchall*), type † ♂ *indistincta* in Coll. Druce; VENEZUELA, 4 ♂; BRAZIL; PARAGUAY, Sapucay (*Foster*), 2 ♂; ARGENTINA (*O. Thomas*), 1 ♀. *Exp.* 46-54 millim.

Genus OPHISMA.

Type.

Ophisma, Guen. Noct. iii. p. 236 (1852) *gravata*.

Proboscis fully developed; palpi upturned, the 2nd joint reaching to about vertex of head and moderately scaled, the 3rd short or moderate; frons smooth; eyes large, round; antennæ of male ciliated; thorax clothed almost entirely with hair and without crests; tibiæ fringed with long hair in male, the mid tibiæ spined, the fore and hind tibiæ not spined; abdomen with dorsal ridges of hair on basal segments. Fore wing with the costa highly arched towards apex which is produced and somewhat falcate, the termen evenly curved and hardly crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the cell about one-third length of wing; veins 3, 4 from angle; 5 fully developed from just above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

SECT. I. Mid tibiæ of male dilated with a groove containing a fringe of large scales; hind tarsi with the 1st joint fringed with hair above.

- A. Hind wing white, the basal and inner areas tinged with rufous..... *pallescons.*
- B. Hind wing yellow, the terminal area whitish..... *albitermia.*
- C. Hind wing grey-brown *cuprizonea.*

7671. *Ophisma pallescens*.

Lagoptera pallescens, Wlk. Journ. Linn. Soc., Zool. vii. p. 179 (1864).

Lagoptera violetta, Pag. Abh. Senck. Ges. xxiii. p. 449, pl. xx. f. 13 (1897).

Ophiusa pallida ab. *subplaga*, Beth.-Baker, Nov. Zool. xiii. p. 260 (1906).

♂. Head pale fuscous brown; thorax and abdomen white tinged with rufous. Fore wing creamy white suffused with dull rufous and irrorated with dark brown; antemedial line pale red-brown and rather diffused, excurved below costa and incurved in cell, then erect; reniform red-brown, oblique elliptical; medial line diffused, red-brown, excurved below costa, then obliquely incurved; postmedial line fine, pale red-brown, slightly waved, excurved below costa, then oblique, and bent outwards to inner margin; subterminal line whitish, arising from near termen below apex, then incurved, excurved at middle, then again incurved and ending at tornus; cilia brown. Hind wing white, the basal and inner areas suffused with rufous; a black subterminal patch from below costa to submedian fold, narrow below, its outer edge excurved and

waved. Underside white tinged with rufous; fore wing with oblique black discoidal spot, a fuscous postmedial line with large patch of blackish suffusion beyond it from vein 6 to submedian fold.

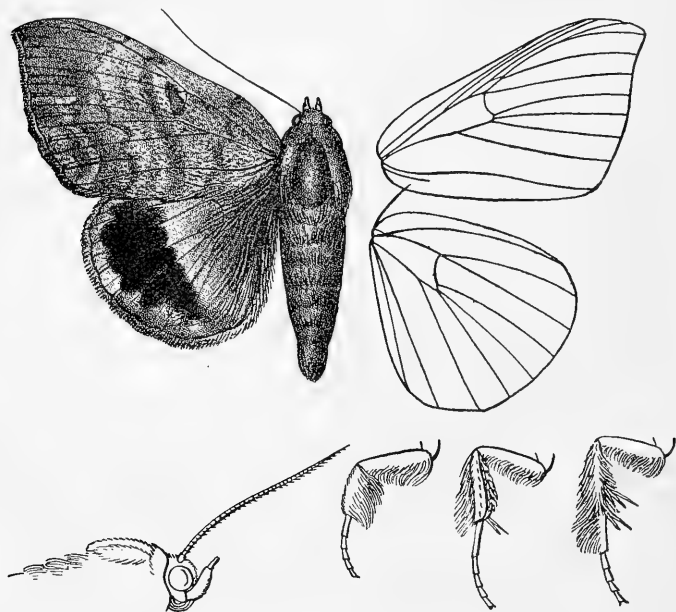


Fig. 126.—*Ophisma pallescens*, ♂. 1.

Ab. 1. Fore wing with the reniform filled in with black.

Ab. 2. *subplaga*. Hind wing with the black subterminal patch elliptical and extending from vein 6 to 3.—Br. N. Guinea.

Hab. SINGAPORE (*Ridley*), 3 ♂; BORNEO, Sarawak (*Wallace*), 1 ♂, Kuching (*Shelford*), 1 ♂; BR. N. GUINEA, Mafalu, type *subplaga* in Coll. Bethune-Baker. *Exp.* 88–94 millim.

7672. *Ophisma albitermia*.

Ophiusa albitermia, Hmpsn. P. Z. S. 1910, p. 418, pl. xxxvii. f. 21.

Head, thorax, and abdomen pale yellow, the last slightly irrorated dorsally with fuscous; palpi, pectus, legs, and ventral surface of abdomen slightly tinged with brown. Fore wing pale yellow slightly irrorated with fuscous, the terminal area whitish, ringed with brown at apex; subbasal line represented by slight dark striæ below costa and cell; antemedial line indistinct, dark, oblique, waved; a dark point in middle of cell and two slight discoidal points; medial line indistinct, double, dark, excurved beyond the cell, then incurved and waved; postmedial line dark, crenulate, slightly curved; subterminal line blackish, oblique from

below apex to discal fold, then erect, a brownish tinge beyond it. Hind wing pale yellow; obliquely curved antemedial and medial lines sometimes present; a postmedial fuscous mark below costa with line from it to tornus; a blackish apical patch with diffused line from it to tornus, the area beyond it whitish; the underside white irrorated with brown, a black discoidal point, indistinct medial and postmedial lines and minutely waved whitish subterminal line incurved below costa.

Hab. N.E. RHODESIA, E. Luangwa District (*Neave*), 2 ♂, 1 ♀ type. *Exp.* 54 millim.

7673. *Ophisma cuprizonea*, n. sp. (Plate CCXIX. fig. 1.)

♀. Head and thorax red-brown; pectus, legs, and abdomen grey-brown, the tarsi ochreous. Fore wing red-brown, the area between the postmedial and subterminal lines cupreous red; antemedial line brown, very slightly defined by blue-grey scales, oblique and almost straight; two dark discoidal points on a faint greyish bar; postmedial line indistinct, double, brown, waved, excurved below costa, then somewhat oblique, and excurved to inner margin; subterminal line indistinct, brown, waved, defining the outer edge of the red area; a series of black and white points just before termen; cilia white mixed with brown and with fine dark lines at base and near tips, wholly brown at tornus. Hind wing greyish brown; a fine white terminal line with points at the interspaces; cilia white mixed with brown and with fine dark lines at base and near tips; the underside brown thickly irrorated with white, the terminal area browner except towards tornus, a dark postmedial line excurved below costa, then oblique, a subterminal series of slight whitish spots.

♂. Slightly darker; fore wing with some white scales on inner edge of the subterminal line below costa and between veins 3 and 1.

Hab. MADAGASCAR, Betsileo (*Cowan*), 1 ♀ type, ♂ in Coll. Kenrick. *Exp.* 48 millim.

SECT. II. Mid tibiae of male not dilated and without groove and fringe of scales, the hind tarsi with the 1st joint not fringed with hair above.

A. Hind wing ochreous.

a. Fore wing without antemedial line.

a¹. Fore wing with rather oblique straight medial line ... *gravata*.

b¹. Fore wing without medial line *pallens*.

b. Fore wing with indistinct dark antemedial line *teterrima*.

B. Hind wing brown.

a. Hind wing with the terminal area ochreous brown *basigutta*.

b. Hind wing with the terminal area not ochreous brown.

a¹. Fore wing with straight and somewhat oblique medial line.

a². Size large, 50-68 millim. *tropicalis*.

b². Size small, 40-44 millim. *variata*.

- b*¹. Fore wing with incurved medial line.
*a*². Fore wing with the basal area pale red-brown, the rest of wing chocolate-brown *tecta*.
*b*². Fore wing with the basal area deep red-brown, the rest of wing pale red-brown *nobilis*.
*c*¹. Fore wing without medial line.
*a*². Hind wing with the cilia dark brown *fulvipuncta*.
*b*². Hind wing with the cilia fulvous *pyrosticha*.

7674. *Ophisma gravata*.

Ophisma gravata, Guen. Noct. iii. p. 237 (1852); Hmps. Moths Ind. ii. p. 494.

Head and thorax pale rufous; antennæ with the shaft white in front towards base; abdomen pale ochreous, the ventral surface tinged with rufous towards extremity. Fore wing pale rufous, irrorated with a few black scales; an indistinct dark inwardly oblique straight medial line; postmedial line very indistinct, dark,

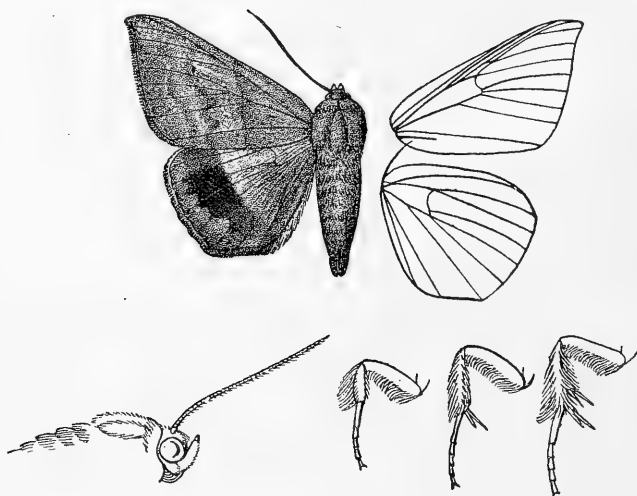


Fig. 127.—*Ophisma gravata*, ♂. 1.

slightly waved, oblique to vein 3, then erect; an indistinct slightly waved dark subterminal line; a series of minute black points before termen; cilia brown, white at tips except towards tornus. Hind wing ochreous yellow, the inner and terminal areas tinged with rufous; a black subterminal band from below costa to submedian fold, its outer edge excurved at middle; some minute black points before middle of termen; cilia white at tips on apical half. Underside of fore wing ochreous, the costa and terminal area tinged with brown, a blackish discoidal point and indistinct postmedial and subterminal lines with a black patch between them

from vein 5 to submedian fold; hind wing whitish tinged with brown and irrorated with black, very indistinct postmedial and subterminal lines except on inner area.

Hab. LOO-CHOO Is. (*Pryer*), 2 ♂; CENTR. CHINA, Kiukiang (*Pratt*), 1 ♂; PUNJAB, 1 ♀; SIKHIM, 1 ♂; ASSAM, Silhet (*Stainsforth*), 1 ♂, 1 ♀, Shillong (*Parish*), 2 ♂, Khásis, 1 ♀, Cherra Punji, 1 ♂; CEYLON, Dickoya (*Green*), 1 ♀; BURMA, Rangoon (*Watson*), 1 ♂; PENANG (*Flower*), 1 ♀; SINGAPORE (*Ridley*), 2 ♀. *Exp.* 56-66 millim.

7675. *Ophisma pallens*. (Plate CCXIX. fig. 2.)

Grammodes pallens, Lucas, P. Linn. Soc. N. S. W. (2) vii. p. 260 (1892).

Head and thorax very pale rufous; antennæ with the shaft white in front towards base; abdomen very pale rufous, the anal tuft and ventral surface whitish tinged with rufous. Fore wing very pale rufous, slightly irrorated with black; a slight incurved punctiform blackish postmedial line from vein 6 to below submedian fold; faint traces of a dark subterminal line; a series of black points before termen; cilia rufous, white at tips except towards tornus. Hind wing ochreous, the inner and terminal areas tinged with rufous; a blackish subterminal patch from above vein 6 to submedian fold, narrowing below; cilia whitish at tips towards apex. Underside whitish tinged with rufous and irrorated with black except the cell and the inner area of fore wing, which has a black discoidal spot and blackish subterminal patch between vein 5 and submedian fold.

Hab. QUEENSLAND, Moreton Bay (*Diggles*), 1 ♂, 1 ♀, Brisbane (*Lucas, Turner*), 1 ♂, 4 ♀. *Exp.* 58-64 millim.

7676. *Ophisma teterrima*, n. sp. (Plate CCXIX. fig. 3.)

♀. Head and thorax dull rufous; antennæ with the shaft white in front towards base; abdomen greyish tinged with rufous. Fore wing dull rufous; a faint brownish antemedial shade; an oblique brown postmedial shade from vein 6 to 1; an oblique brownish subterminal shade from apex to inner margin; a series of minute black points before termen; cilia white at tips except towards tornus. Hind wing ochreous tinged with rufous, the costal area whitish towards apex; a rounded fuscous subterminal patch between veins 6 and 2; cilia rufous, white at tips except towards tornus. Underside brownish ochreous irrorated with brown; fore wing with diffused blackish discoidal spot and fuscous shade between the indistinct postmedial and subterminal lines except towards costa and inner margin; hind wing with blackish discoidal point, faint fuscous subterminal shade at discal fold, and series of black points before termen.

Hab. S. NIGERIA, Lagos (*Strahan*), 1 ♀ type. *Exp.* 40 millim.

*7677. *Ophisma basigutta*.

Ophisma basigutta, Feld. Reis. Nov. pl. 116. f. 12 (1874).

♂. Head and thorax red-brown; abdomen greyish brown; palpi, pectus, legs, and ventral surface of abdomen dark brown irrorated with grey. Fore wing deep red-brown with a faint greyish tinge except on postmedial area; a small tuft of white scales at base; a faint pale almost erect antemedial line; an inwardly oblique pale medial line defined on inner side by a narrow dark brown band; blackish points at angles of cell; postmedial line very indistinct, dark, slightly defined on each side by rufous; oblique towards costa, slightly angled inwards below vein 7, then incurved, excurved between vein 3 and submedian fold to just before subterminal line, then curved inwards and upwards to lower angle of cell and erect and slightly sinuous to inner margin, some white points beyond it on costa; subterminal line pale slightly defined on each side by fuscous, waved towards costa, incurved below vein 7 and waved at middle; some white suffusion at apex; a series of black points before termen defined by white towards apex; a fine black terminal line. Hind wing fuscous brown, the terminal area ochreous brown; a curved blackish postmedial line; a blackish subterminal band with slightly waved edges narrowing towards tornus; traces of a crenulate blackish terminal line reduced to points towards apex; cilia dark brown on inner half. Underside of fore wing fuscous, the costal area irrorated with grey, a slightly waved black postmedial line defined on inner side by ochreous and followed by a blackish band, the terminal area ochreous brown; hind wing fuscous irrorated with grey, a curved crenulate black postmedial line defined on inner side by small ochreous spots, a faint subterminal line incurved below costa and waved at middle, the terminal area ochreous brown to vein 4 with traces of a crenulate line before termen with slight whitish spots beyond it towards apex.

Hab. FR. GUIANA; PERU, Carabaya, Oconeque (*Oekenden*), in Coll. Druce. *Exp.* 60 millim.

7678. *Ophisma tropicalis*.

Ophisma tropicalis, Guen. Noct. iii. p. 238 (1852); Feld. Reis. Nov. pl. 116. f. 14.

Ophisma crocimacula, Guen. Noct. iii. p. 239 (1852).

Ophisma detrahens, Wlk. xiv. 1368 (1858).

Ophisma luteiplaga, Wlk. xiv. 1369 (1858).

Ophisma confundens, Wlk. xiv. 1372 (1858).

Ophisma stigmatifera, Wlk. xiv. 1387 (1858).

Ophisma fugiens, Wlk. xiv. 1387 (1858).

Ophisma morbillosa, Feld. Reis. Nov. pl. 116. f. 15 (1874).

(*detrahens*). Head, thorax, and abdomen pale rufous. Fore wing pale rufous, the basal area slightly darker, a small tuft of white scales below base of cell; the 1st line almost medial, rufous slightly defined on outer side by whitish, straight

and somewhat inwardly oblique; a faint pale discoidal bar with black points at its upper and lower extremities; postmedial line formed by minute brown lunules faintly defined on outer side by ochreous, oblique to above vein 6, then bent inwards, forming an oblique sinus extending to submedian fold, then bent inwards and upwards to near lower angle of cell and waved to inner margin, a faint brown shade beyond it from costa; traces of a pale waved subterminal line, excurved below vein 7, where there is a dark point on its inner side, and excurved at middle; a series of black points before termen. Hind wing dull reddish brown; a slight oblique dark postmedial line from vein 6 to tornus with a blackish shade beyond it, broad at costa, narrowing to a point at tornus; a series of black points just before termen. Underside pale red-brown with a greyish tinge; fore wing with slight postmedial and subterminal lines with blackish patch between them at middle; hind wing with black discoidal point, postmedial line waved to discal fold, then oblique, and faint diffused subterminal line.

Ab. 1. *tropicalis*. Fore wing with oblique whitish band beyond the medial line defined on outer side by rather diffused black.

Ab. 2. *morbillosa*. Fore wing with black suffusion between medial and subterminal lines from below costa to vein 2, the postmedial line defined by more or less developed serpentine greyish markings.

Ab. 3. *croceimacula*. Head, thorax, and fore wing bright deep rufous with a more or less developed orange spot above inner margin on the postmedial line.

Hab. MEXICO, at sea, 1 ♀, Jalapa (*Trujillo, Hoege*), 3 ♂, 3 ♀, Durango (*Becker*), 1 ♀, Godman-Salvin Coll.; N.W. COAST OF AMERICA (*Kellett & Wood*), 3 ♂, 1 ♀ type *detrahens*; CUBA, Santiago (*Schaus*), 1 ♂, Baracoa (*Schaus*), 2 ♀; HAITI (*Tweedie*), 1 ♂; ST. VINCENT, 1 ♀ type *stigmatifera*; GRENADA (*H. H. Smith*), 1 ♂, 1 ♀; COLOMBIA, Bogotá (*Stevens*), 1 ♂ type *confundens*; VENEZUELA, Aroa, 2 ♀; BRAZIL, Bahia (*de la Garde*), 1 ♀, Rio Janeiro, 1 ♀ type *luteiplaga*, Tijuca (*Wagner*), 1 ♀; PARAGUAY, Sapucay (*Foster*), 8 ♂, 5 ♀; ARGENTINA, Mendoza (*Baine*), 1 ♂; HAB. IGN., 1 ♀ type *fugiens*. *Exp.* 50-68 millim.

7679. *Ophisma variata*. (Plate CCXIX. fig. 4.)

Ophisma variata, Schaus, A. M. N. H. (7) viii. p. 89 (1901).

♂. Head, thorax, and abdomen deep red-brown. Fore wing deep red-brown; antemedial line almost medial, brown slightly defined on outer side by grey, straight and somewhat inwardly oblique; two dark discoidal points on faint pale spots; postmedial line indistinct, brown, waved, oblique and slightly defined on outer side by white to vein 6, then bent inwards, forming an oblique sinus extending to submedian fold, then retracted to lower angle of cell and erect to inner margin, some whitish points beyond it on costa; a faint pale waved subterminal line, excurved below costa; a series of white and

black points just before termen. Hind wing brown with a cupreous reddish gloss; the apical area somewhat darker with a faint subterminal shade from it to tornus; the underside grey-brown irrorated with dark brown, a dark postmedial line minutely waved to vein 4, faint subterminal shade, a series of black points before termen.

Ab. 1. Fore wing with some violaceous white suffusion beyond the medial line.

Ab. 2. Fore wing with fiery orange patch on costal area before and beyond the postmedial line and spots on the postmedial line below end of cell and above inner margin.

Hab. W. COLOMBIA, El Credo, 1 ♂; VENEZUELA, Aroa, 1 ♂; BRAZIL, Castro Paraña (*D. Jones*), 2 ♂. *Exp.* 40–44 millim.

7680. *Ophisma tecta*. (Plate CCXIX. fig. 5.)

Ophisma tecta, Schaus, Trans. Am. Ent. Soc. xxi. p. 243 (1894).

♂. Head, thorax, and abdomen dull red-brown; palpi, pectus, legs, and ventral surface of abdomen irrorated with grey, the tarsi ringed with whitish. Fore wing with the basal area to the medial line dull red-brown, the rest of wing dark brown; antemedial line indistinct, whitish, oblique, sinuous; medial line fine, white, strongly incurved; postmedial line very indistinct, dark, slightly defined on outer side by white towards costa, minutely waved, oblique to vein 6, then bent inwards, obliquely excurved to submedian fold near termen, then retracted to vein 3 just beyond lower angle of cell and erect and waved to inner margin, some white points beyond it on costa; a very indistinct slightly waved dark subterminal line with slight white irroration beyond it at costa; a series of black points just before termen. Hind wing dark brown with a fine pale line at base of cilia. Underside greyish brown; fore wing with the costa irrorated with white, two white points towards apex and a white patch at apex, a dark discoidal bar and indistinct waved postmedial and subterminal lines; hind wing irrorated with violaceous white except on inner and terminal areas, a minutely waved dark postmedial line.

Hab. MEXICO, Jalapa (*Schaus*), 1 ♂; BRAZIL, Castro Paraña. *Exp.* 44 millim.

*7681. *Ophisma nobilis*. (Plate CCXIX. fig. 6.)

Ophisma nobilis, Schaus, A. M. N. H. (S) vii. p. 62 (1911).

♂. Head and thorax chocolate red-brown; palpi grey-brown; pectus and legs grey mixed with brown, the tarsi fuscous ringed with whitish; abdomen deep chocolate-brown, the anal tuft with some grey, the ventral surface black-brown slightly irrorated with grey. Fore wing with the basal area chocolate red-brown, the rest of wing pale red-brown with a large lunulate chocolate-brown

patch on apical part of costa defined on inner side by a white line; the basal area defined on outer side by a slightly incurved whitish line; two dark brown discoidal points and a slight waved line from lower angle of cell to inner margin; postmedial line white and obliquely incurved on the inner edge of the white patch to vein 6 where it is acutely angled outwards, then slight, brown, waved and incurved, angled outwards at submedian fold, some white points beyond it on costa; traces of a waved brown line from the lunulate patch to inner margin; the termen whitish except towards tornus, with a series of dark points before termen and a fine dark terminal line; cilia whitish with slight brown lines near base and tips. Hind wing dark red-brown; traces of an oblique postmedial line defined by whitish and ending at tornus; the termen whitish at middle with a series of dark points before it and a fine dark terminal line; cilia whitish with slight brown lines near base and tips; the underside grey thickly irrorated with brown, the terminal area suffused with brown, a black discoidal point and postmedial line bent outwards below costa, crenulate to vein 2, then incurved and ending at tornus.

Hub. COSTA RICA, Juan Vinas (*Schaus*), type † ♂ in U.S. Nat. Mus. *Exp.* 56 millim.

7682. *Ophisma fulvipuncta*. (Plate CCXIX. fig. 7.)

Ophisma fulvipuncta, Schaus, A. M. N. H. (8) vii. p. 63 (1911).

♂. Head and thorax pale red-brown; antennæ with the basal joint white in front; palpi, pectus, and legs brown irrorated with white; abdomen brown, the ventral surface irrorated with white. Fore wing red-brown suffused with purple and sparsely irrorated with greenish white scales; small greenish white spots below costa and in and below the cell before the indistinct waved dark antemedial line defined on outer side by some greenish white scales; reniform small, elliptical, greenish white with brown striga in centre; postmedial line brown defined on each side by greenish white towards costa, then by greenish white scales on outer side, minutely waved, oblique towards costa, at vein 2 bent upwards to lower angle of cell, then somewhat oblique to inner margin with a fulvous red spot on its outer edge above vein 1; subterminal line very indistinct, waved, with small whitish spots on it from costa to vein 5; a series of black points before termen defined on inner side by whitish points; cilia brown, irrorated with white at apex and tipped with white towards apex. Hind wing dark brown; a faint oblique pale line from below middle of costa to near tornus where there is a white point on it; a series of brown striæ just before termen defined by a few white scales; cilia tipped with white except towards tornus. Underside brown, the costal area and termen of fore wing and the hind wing irrorated with purple-white; fore wing with erect slightly waved postmedial line defined by white scales and series of points before termen; hind wing

with curved slightly waved postmedial line defined on inner side by small white spots, punctiform white subterminal line, and series of points before termen.

Hab. COSTA RICA, Juan Vinas (*Schaus*), 1 ♀. *Exp.* 56 millim.

*7683. *Ophisma pyrosticha*. (Plate CCXIX. fig. 8.)

Ophisma pyrosticha, Druce, A. M. N. H. (8) ix. p. 553 (1912).

♂. Head, thorax, and abdomen dark red-brown; pectus, legs, and ventral surface of abdomen grey-brown. Fore wing dark red-brown; a white point at base; slight blue-grey spots below costa and in and below cell before the indistinct dark antemedial line, which is slightly excurved to submedian nervure, then slightly incurved, a blue-grey spot on its outer edge below costa; a blue-grey discoidal spot; postmedial line dark, waved to below vein 4 and defined on each side by slight white marks at costa, then by slight blue-grey marks to below vein 4, excurved below costa and at middle, below vein 2 bent upwards to below end of cell and forming an annulus, then sinuous to inner margin and with small fiery red spots on it above and below vein 1, some white points beyond it on costa; the apical part of costal area with slight blue-grey irroration and a small patch of whitish suffusion on costa before apex; faint traces of a waved dark subterminal line; a series of black points before termen with some whitish scales on their inner side towards apex; a fine black terminal line; cilia fulvous except towards apex. Hind wing dark brown, the terminal area slightly paler in submedian interspace; cilia fulvous tipped with white. Underside of both wings grey-brown with darker irroration, a curved dark postmedial line waved towards costa of hind wing, diffused subterminal band, and series of black points before termen.

Hab. S.E. PERU, San Domingo (*Ockenden*), type ♂ in Coll. Druce. *Exp.* 46 millim.

Genus **PLASMATICUS**.

Plasmaticus, Beth.-Baker, Nov. Zool. xiii. p. 268 (1906) Type. *angulata*.

Proboscis fully developed; palpi upturned, the 2nd joint reaching to vertex of head and broadly scaled, the 3rd moderate; frons smooth, with tuft of hair; eyes large, round; antennæ of male almost simple; thorax clothed almost entirely with scales and without crests; tibiæ of male fringed with long hair, the mid tibiæ spined, in male dilated with a groove containing a fringe of scales, the hind tibiæ very short, the spurs very long, the 1st joint of tarsus tufted with long hair above and below; tufts of long hair and scales from pectus below base of wings; abdomen with ridges of hair on basal segments but without crests. Fore wing broad, the apex produced and acute, the termen excised to vein 5 where it is produced to an angle; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the cell about one-third length of wing; veins 3, 4, 5 from lower angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only; the termen angled at vein 2, then excised to tornus.

7684. *Plasmaticus angulata*.

Plasmaticus angulata, Beth.-Baker, Nov. Zool. xiii. p. 268 (1906).

Head and thorax bright red-brown irrorated with white; pectus, legs, and abdomen grey-brown irrorated with white. Fore wing bright red-brown sparsely irrorated with large grey-white scales; two white points at base; subbasal line white, double, rather diffused and interrupted, from costa to vein 1; antemedial line white, double and diffused towards costa, then represented by white points below median nervure and on vein 1 and inner margin;

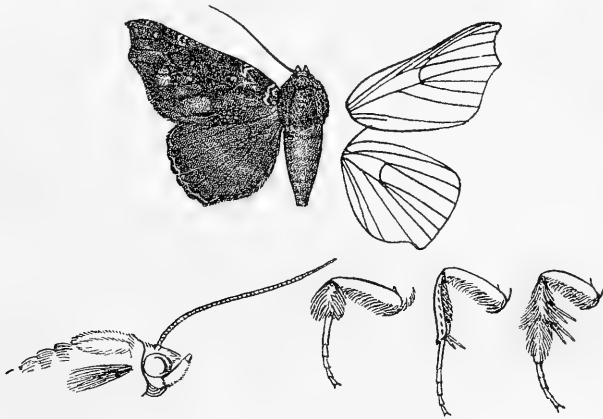


Fig. 128.—*Plasmaticus angulata*, ♂. 1.

orbicular a small round pure white spot; a faint dark medial line, excurved from below costa to vein 2, then erect; postmedial line represented by double white strigæ from costa, then by a series of white points excurved to vein 6, then oblique, some white points beyond it on costa; two small obliquely placed grey subapical spots and subterminal patches between veins 5 and 3 and in submedian fold; a terminal series of small grey-white spots slightly defined by brown on inner side; cilia largely mixed with blue-grey. Hind wing grey-brown, the terminal area suffused with rufous leaving some grey irroration on termen and a white striga on the excision below vein 2; a terminal series of white points; cilia largely mixed with blue-grey. Underside of fore wing grey-brown, the costal area irrorated with blue-grey, the postmedial line defined on each side by grey becoming small white spots on the outer side towards costa, a maculate greyish ochreous subterminal band obsolescent towards tornus; hind wing grey-brown thickly irrorated with blue-grey, the

postmedial line curved, defined on each side by small white spots, a subterminal series of small white spots.

Hab. DUTCH N. GUINEA, Fak-fak (*Pratt*), 1 ♂; BR. N. GUINEA, Dinawa (*Pratt*), type † ♀ in Coll. Bethune-Baker. *Exp.* 58 millim.

Genus **EUPHIUSA**, nov.

Type, *E. harmonica*.

Proboscis fully developed; palpi with the 2nd joint upturned, reaching to vertex of head and moderately scaled, the 3rd moderate and porrect; frons smooth, with tuft of hair above; eyes large, round; antennæ of male ciliated; thorax clothed with hair and scales and without crests; tibiæ slightly fringed with hair, the fore tibiæ not spined, the hind tibiæ with a single spine between the mid and terminal spurs; abdomen smoothly scaled. Fore wing with the apex rounded, the termen evenly curved and not crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the cell about one-third length of wing; veins 3, 4 from angle; 5 fully developed from just above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

7685. *Euphiusa harmonica*.

Chalciope harmonica, Hmps. Ann. S. Afr. Mus. ii. p. 335 (1902).

♂. Head, thorax, and abdomen pale grey faintly tinged with rufous; antennæ brown; pectus and ventral surface of abdomen white. Fore wing violaceous grey; a minute subbasal dark brown

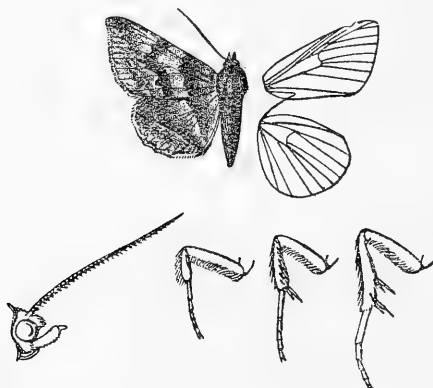


Fig. 129.—*Euphiusa harmonica*, ♂. †.

lunule below the costa; the antemedial area tinged with rufous before the antemedial line which is black and waved; the medial area suffused with dark brown before the postmedial line, which is black, waved, oblique to below vein 4 where it is acutely angled outwards, then incurved; the postmedial area tinged with rufous extending on costa to apex; subterminal line indistinct, whitish,

dentate, oblique below vein 7 where there is a slight brown mark on it, some brown suffusion before and beyond it at inner margin; a series of black points before termen and a fine whitish line at base of cilia. Hind wing whitish tinged with brown; an oblique slightly incurved black medial line from discal fold to inner margin; the postmedial area suffused with black-brown and with a whitish line from vein 4 to tornus; the termen grey-white except towards apex and tornus; a terminal series of black points and a bar towards tornus; cilia white, brownish at tips on inner half; the underside white irrorated with red-brown, a small brown discoidal spot, minutely waved postmedial line, subterminal shade, and series of black points before termen.

Hab. BECHUANALAND, N'Gami (*Lugard*), 1 ♂ type. *Exp.* 36 millim.

Genus **PARALLELIA.**

	Type.
<i>Parallelia</i> , Hübn. Verz. p. 269 (1827)	<i>histriaris</i> .
<i>Dysgonia</i> , Hübn. Verz. p. 269 (1827)	<i>joviana</i> .
<i>Naxia</i> , Guen. Noct. iii. p. 254 (1852)	<i>absentimacula</i> .
<i>Pasipeda</i> , Moore, Lep. Atk. p. 171 (1882); nec Wlk. Lep. 1858	<i>palumba</i> .
<i>Macaldenia</i> , Moore, Lep. Ceyl. iii. p. 162 (1884)	<i>palumba</i> .
<i>Caranilla</i> , Moore, Lep. Ceyl. iii. p. 169 (1884)	<i>onelia</i> .
<i>Pindara</i> , Moore, Lep. Ceyl. iii. p. 169 (1884)	<i>illibata</i> .

Proboscis fully developed; palpi upturned, the 2nd joint reaching about to vertex of head and moderately scaled, the 3rd moderate; frons smooth with tuft of hair above; eyes large, round; antennæ of male ciliated; thorax clothed with hair and scales mixed and without crests; tibiæ typically slightly fringed with hair, the fore and hind tibiæ * not spined, the mid tibiæ spined and typically not dilated in male; abdomen with dorsal ridges on basal segments, but without crests. Fore wing with the apex slightly produced and acute, the termen evenly curved and hardly crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with the cell about one-third length of wing; veins 3, 4 from angle; 5 fully developed from just above angle; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

SECT. I. Mid tibiæ of male dilated with a groove containing a fringe of large scales.

A. Hind tarsi of male with the 1st joint fringed with hair above at base.

a. Fore wing of male with a depressed groove below middle of submedian fold, the terminal part of cell narrow and the neuration somewhat distorted.

7686. *Parallelia orodes*.

Phalæna orodes, Cram. Pap. Exot. ii. p. 49, pl. 129. f. F (1779).

Head and thorax red-brown; pectus, legs, and abdomen greyish brown, the last with the hair on base of dorsum reddish brown. Fore wing red-brown, the costal area towards apex and the terminal area greyish, the depressed groove at middle of submedian fold in male greyish; a faint oblique brown antemedial line from costa to

* The hind tibiæ abnormally with one or two spines.

submedian fold; two slight blackish points before and beyond the discocellulars; a faint brown medial line, oblique to vein 6 and incurved below vein 4; an indistinct very oblique postmedial line from costa to vein 6; subterminal line double, brown filled in with grey, oblique; a series of black points before termen. Hind wing

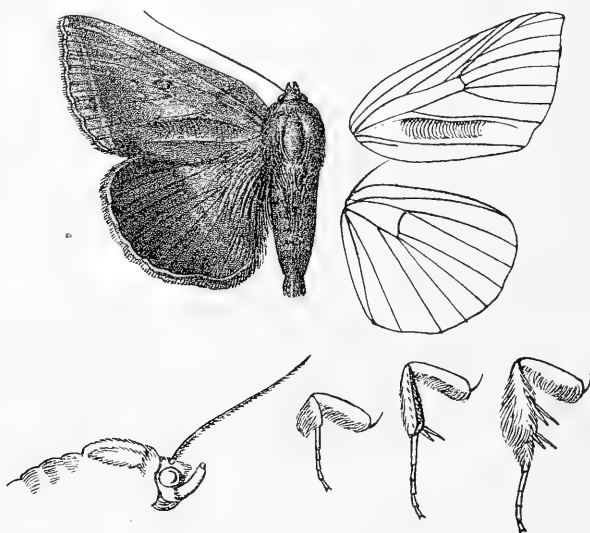


Fig. 130.—*Parallelia orodes*, ♂. 1.

fuscous brown with a greyish gloss; cilia white except towards tornus. Underside greyish brown with a faint postmedial line defined on outer side by greyish; hind wing with two slight curved postmedial lines, the outer defined by greyish.

Hab. BR. GUIANA, Demerara (*Rodway*), 1 ♂, 1 ♀, Rockstone (*Kaye*), 1 ♂, Potaro R. (*Kaye*), 1 ♂; SURINAM; BRAZIL, Amazons, Pará (*Austen*, *Trumbill*, *Durham*, *Goeldi*), 1 ♂, 4 ♀, Bréves (*Austen*), 1 ♂, 1 ♀. *Exp.* 62–70 millim.

- b.* Fore wing of male without depressed groove below middle of submedian fold, the neuration normal, the thorax with tufts of hair and scales below base of wings.
*a*¹. Fore wing with the costa lobed before middle.

7687. *Parallelia redunca*.

Ophiusa redunca, Swinh. Cat. Het. Mus. Oxon. ii. p. 141, fig. (1900).

Thyas aellora, Meyr. Trans. Ent. Soc. 1902, p. 29.

Ophiusa trophidota, Turner, Pr. Linn. Soc. N. S. W. xxvii. p. 95 (1902).

♀. Head and thorax red-brown; antennæ with the shaft whitish in front; tegulæ tipped with whitish, the patagia with oblique

whitish line at middle, the metathorax with a whitish line; pectus, legs, and abdomen greyish brown. Fore wing red-brown tinged with purplish grey and slightly irrorated with black especially on the veins, the outer half of medial area somewhat darker; subbasal line pale, from costa to submedian fold; antemedial line red-brown slightly defined on each side by greyish, excurved below costa, then oblique, sinuous; a white point in middle of cell; medial line brown, oblique, excurved at upper angle of cell; postmedial line red-brown slightly defined on outer side by greyish, oblique to vein 6, then incurved, some white points beyond it on costa; a faint pale waved subterminal line; an oblique streak from apex, a series of

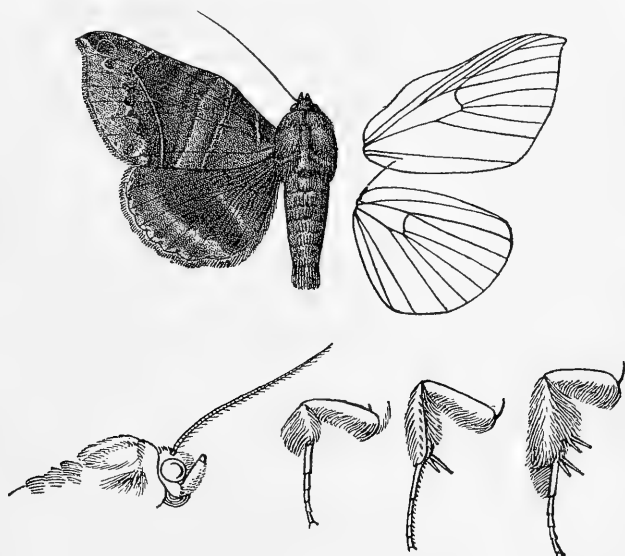


Fig. 131.—*Parallelia redunca*, ♂. $\frac{1}{2}$.

black points just before termen. Hind wing grey-brown, the postmedial area fuscous brown, the terminal area greyish irrorated with fuscous; an oblique whitish postmedial line from vein 5 to inner margin near tornus; a series of black points just before termen; a fine brown terminal line and whitish line at base of cilia. Underside pale purplish grey irrorated with dark brown; fore wing with crenulate brown postmedial line and indistinct sinuous subterminal line; hind wing with black discoidal point, crenulate medial and postmedial lines, and series of black and white points before termen.

♂ with a small black spot on the subterminal line above vein 6.

Hab. DUTCH N. GUINEA; Arfak Mts., Ninay Valley (*Pratt*), 1 ♂, 1 ♀; QUEENSLAND, Brisbane, 1 ♀. *Evp.* 64 millim.

- b*¹. (*Dysgonia*.) Fore wing with the costa evenly curved.
- a*². Hind wing without white medial band.
- a*³. Hind wing without yellow medial band.
- a*⁴. Fore wing with the postmedial line angled outwards at vein 6.
- a*⁵. Fore wing with the postmedial line dentate below vein 6.
- a*⁶. Fore wing with the medial line excurved beyond the cell and waved.
- a*⁷. Fore wing with the antemedial line oblique and sinuous throughout.
- a*⁸. Fore wing without diffused yellow subterminal lunules on the postmedial costal chocolate-brown patch.
- a*⁹. Fore wing red-brown *anetica*.
- b*⁹. Fore wing deep purple-brown *serratilinea*.
- b*⁸. Fore wing with diffused yellow subterminal lunules on the postmedial costal chocolate-brown patch *prisca*.
- b*⁷. Fore wing with the antemedial line oblique and slightly incurved, not sinuous *illibata*.
- b*⁶. Fore wing with the medial line inwardly oblique and straight *rigidistria*.
- b*⁵. Fore wing with the postmedial line not dentate below vein 6.
- a*⁶. Fore wing with the postmedial line incurved below vein 3.
- a*⁷. Fore wing with the medial line excurved beyond the cell and waved.
- a*⁸. Fore wing with the antemedial line inwardly oblique.
- a*⁹. Fore wing dark red-brown.
- a*¹⁰. Fore wing with white medial band.
- a*¹¹. Head and thorax fulvous orange.
- a*¹². Fore wing with the cilia chequered brown and white..... *latizona*.
- b*¹². Fore wing with the cilia wholly white. *infractifinis*.
- b*¹¹. Head and tegulæ fulvous orange, thorax brown.
- a*¹². Fore wing with the medial band broad, its inner edge sinuous *roulera*.
- b*¹². Fore wing with the medial band narrow, its inner edge nearly straight *frontina*.
- b*¹⁰. Fore wing without white medial band.
- a*¹¹. Head and tegulæ fulvous orange *propyrrha*.
- b*¹¹. Head and tegulæ red-brown, the palpi fulvous *feneratrix*.
- b*⁹. Fore wing cupreous brown strongly suffused with purple-grey.
- a*¹⁰. Head and tegulæ fulvous orange *onelia*.
- b*¹⁰. Head brown suffused with fulvous *lagesos*.
- c*¹⁰. Head without fulvous *umbrosa*.
- b*⁸. Fore wing with the antemedial line erect.
- a*⁹. Fore wing with the antemedial line excurved in cell, then straight; hind wing with black spot above tornus *circumsignata*.
- b*⁹. Fore wing with the antemedial line not excurved in cell; hind wing without black spot above tornus.

- a^{10} . Fore wing with the outer edge of the conical grey patch on postmedial part of costa indented and with oblique black-brown mark beyond it from apex.
 a^{11} . Fore wing with the antemedial line double, slightly waved, and not defined on outer side by whitish *palpalis*.
 b^{11} . Fore wing with the antemedial line single, straight, and defined on outer side by whitish *trogosema*.
 b^{10} . Fore wing with the outer edge of the conical grey patch on postmedial part of costa not indented, and without oblique black-brown mark beyond it from apex.
 a^{11} . Head and thorax pale rufous *renalis*.
 b^{11} . Head and thorax grey-brown.
 a^{12} . Hind wing without pale postmedial line *proxima*.
 b^{12} . Hind wing with pale curved postmedial line *pudica*.
 b^6 . Fore wing with the postmedial line incurved from below vein 6.
 a^7 . Fore wing with the postmedial line excurved at middle.
 a^8 . Fore wing with the postmedial line waved. *dentilinea*.
 b^8 . Fore wing with the postmedial line not waved.
 a^9 . Fore wing with the antemedial line excurved.
 a^{10} . Fore wing with the postmedial line slightly incurved below vein 6 *subacuta*.
 b^{10} . Fore wing with the postmedial line very strongly incurved below vein 6 *arcifera*.
 b^9 . Fore wing with the antemedial line incurved *joviana*.
 a^9 . Fore wing with the antemedial line oblique, straight *solomonensis*.
 b^7 . Fore wing with the postmedial line not excurved at middle.
 a^8 . Fore wing with the medial line excurved beyond the cell and waved, indistinct or almost obsolete.
 a^9 . Fore wing with oblique black-brown mark from apex bent inwards above vein 6 *maturescens*.
 b^9 . Fore wing with oblique black-brown mark from apex angled outwards above vein 6 *amygdalis*.
 a^9 . Fore wing with slight oblique dark streak from apex.
 a^{10} . Fore wing with the postmedial line not defined on outer side by white towards costa *humilis*.
 b^{10} . Fore wing with the postmedial line defined on outer side by white towards costa *insignifica*.
 b^8 . Fore wing with the medial line outwardly oblique, the postmedial line slightly angled at vein 6 *absentimacula*.

- c*⁸. Fore wing with the medial line inwardly oblique.
*a*⁹. Fore wing with the postmedial line slightly angled at vein 6, then incurved and closely approximated to the medial line..... *lilacea*.
*δ*⁹. Fore wing with the postmedial line strongly angled outwards at vein 6, and well separated from the medial line.
*a*¹⁰. Fore wing with the outer part of medial area red-brown *duplexa*.
*δ*¹⁰. Fore wing with the outer part of medial area deep chocolate-brown.
*a*¹¹. Fore wing with the apical streak oblique to the angle of the postmedial line *maturata*.
*δ*¹¹. Fore wing with the apical streak angled above vein 6, then bent inwards to the angle of the postmedial line *acuta*.
*δ*⁸. Fore wing with the medial line incurved.
*a*⁹. Fore wing with the antemedial line curved inwards to inner margin.
*a*¹⁰. Fore wing with oblique black-brown mark from apex bent inwards above vein 6 *conjunctura*.
*δ*¹⁰. Fore wing with oblique black-brown mark from apex angled outwards above vein 6.
*a*¹¹. Fore wing with the basal area dark brown, contrasting with the medial band *curvata*.
*δ*¹¹. Fore wing with the basal area more suffused with purple-grey and less contrasting with the medial band ... *arcuata*.
*δ*⁹. Fore wing with the antemedial line straight and erect.
*a*¹⁰. Fore wing with oblique black-brown mark from apex bent inwards above vein 6 *interpensa*.
*δ*¹⁰. Fore wing with oblique black-brown mark from apex angled outwards above vein 6 *albocincta*.
*c*⁹. Fore wing with the antemedial line outwardly oblique.
*a*¹⁰. Fore wing with the basal area red-brown.
*a*¹¹. Fore wing with the medial band white and broad towards inner margin *expediens*.
*δ*¹¹. Fore wing with the medial band red-brown and very narrow towards inner margin *purpurata*.
*δ*¹⁰. Fore wing with the basal area purplish grey *axiniphora*.
*δ*⁹. Fore wing with the antemedial line obliquely incurved *copidiphora*.
*c*⁶. Fore wing with the postmedial line oblique and straight below vein 6..... *leucogramma*.
*δ*⁴. Fore wing with the postmedial line oblique to vein 4, then inwardly oblique and waved ... *hercodes*.

- b*³. Hind wing with yellow medial band *fulvotænia*.
*b*². Hind wing with white medial band
*a*³. Fore wing with the postmedial line angled outwards at vein 6.
*a*⁴. Fore wing with the postmedial line incurved below vein 3 *analis*.
*b*⁴. Fore wing with the postmedial line incurved from below vein 6.
*a*⁵. Fore wing with postmedial line waved *conficiens*.
*b*⁵. Fore wing with the postmedial line not waved.
*a*⁶. Fore wing with the antemedial line oblique and sinuous, the postmedial line incurved at submedian fold *senex*.
*b*⁶. Fore wing with the antemedial line excurved.
*a*⁷. Fore wing with oblique dark mark from apex and dentate spot above vein 6.
*a*⁸. Fore wing with the postmedial line distinctly excurved at middle *stuposa*.
*b*⁸. Fore wing with the postmedial line very slightly excurved at middle.
*a*⁹. Fore wing with oblique dark mark from apex with two spots below it *constricta*.
*b*⁹. Fore wing with oblique dark mark from apex angled outwards above vein 6..... *dicocla*.
*b*⁷. Fore wing with the dark mark from apex oblique to above vein 6, then bent inwards *crameri*.
*a*⁶. Fore wing with the antemedial line oblique, straight *vitiensis*.
*b*³. Fore wing with the postmedial line oblique to below vein 4 near termen, then inwardly oblique and straight *rogenhoferi*.

*7688. *Parallelia anetica*.

Ophisma anetica, Feld. Reis. Nov. pl. 116. f. 11 (1874).

♀. Head and thorax red-brown; pectus, legs, and abdomen grey-brown. Fore wing red-brown; traces of an oblique sinuous rufous antemedial line; a white point in middle of cell; reniform defined by pale grey, narrow, an indistinct waved brown medial line, excurved to vein 4, then incurved; postmedial line red-brown, oblique and sinuous to vein 6, with a white striga on its outer edge at costa, below vein 6 dentate, a deep chocolate-brown patch beyond it on costal area with some white points at costa, the patch defined by a slight pale line; the terminal area narrowly purple-grey except at apex and towards tornus, with a fine crenulate dark line just before termen, with blackish points at the interspaces; cilia red-brown. Hind wing fuscous brown with a faint blue-grey gloss; an obliquely curved grey postmedial line; the terminal area narrowly purple-grey from below apex to submedian fold, with a fine sinuous dark line just before termen and a fine terminal line; cilia grey, brown at apex and towards tornus. Underside of both wings grey irrorated with brown, a curved medial line, waved postmedial line, and dark subterminal shade; fore wing with the costal area pale

ochreous towards apex to which the subterminal shade is bent outwards.

Ab. 1. Fore wing with the stigmata almost obsolete.

Hab. FIJI, type ♂ ♀ in Coll. Rothschild, Vita Levu, Suva (Woodford) in Coll. Druce. *Exp.* 60 millim.

7689. *Parallelia serratilinea.* (Plate CCXIX. fig. 9.)

Ophiusa serratilinea, Beth.-Baker, Nov. Zool. xiii. p. 257 (1906).

Head and thorax red-brown; pectus, legs, and abdomen grey-brown, the last dorsally tinged with blue-grey. Fore wing red-brown sparsely irrorated with white scales; a minute tuft of white-tipped scales below base of cell; subbasal line rufous with a faint dark line in middle, sinuous, from costa to submedian fold; antemedial line rufous with a red-brown line in middle, oblique, sinuous; a white point in middle of cell; reniform whitish defined by brown and with brown striga in centre; medial line indistinct, brown, waved, excurved to vein 4, then oblique; postmedial line red-brown, oblique and defined on outer side by white to vein 6, then dentate and produced to minute white points on the veins, incurved below vein 4, a semi-elliptical chocolate-brown patch beyond it on costal area, extending to apex, defined by white below and with whitish points on costa; traces of a waved whitish subterminal line except on costal area, incurved at submedian fold; the termen grey except towards apex and tornus, with a fine white terminal line with points at the interspaces, defined on inner side by a fine waved brown line. Hind wing fuscous brown tinged with blue-grey; a diffused blue-grey postmedial line from vein 6 to above tornus; the termen bluish white from vein 6 to submedian fold; a fine white terminal line with points at the interspaces, defined on inner side by a fine dark line; cilia blue-grey, rufous at apex and with fine dark lines at base and near tips. Underside fuscous brown irrorated with grey; fore wing with reddish ochreous postmedial band expanding into a triangular patch at costa and with curved waved dark line on it towards costa, a reddish ochreous subterminal line, oblique between veins 7 and 5, then maculate; hind wing with reddish ochreous postmedial band with waved dark line on it and subterminal series of small ochreous spots.

Hab. BR. N. GUINEA, Ekeikei (Pratt), 3 ♀, Mt. Kebea (Pratt), 1 ♂, 1 ♀. *Exp.* 66-72 millim.

7690. *Parallelia prisca.* (Plate CCXIX. fig. 10.)

Ophisma prisca, Wlk. xiv. 1385 (1858).

♂. Head and thorax dull reddish brown; antennæ pale at base; pectus, legs, and abdomen greyish brown, the fore tarsi ringed with white. Fore wing dull reddish brown; subbasal line red-brown defined on each side by reddish ochreous, from costa to submedian fold; antemedial line red-brown defined on each side by reddish ochreous,

oblique, sinuous; a whitish point in middle of cell; reniform defined by dark brown, with some white scales representing its annulus and brown striga in centre; medial line double, dentate, excurved beyond the cell, then incurved; postmedial line white and oblique from costa to vein 6 with some yellowish before it, then brown slightly defined by yellowish, dentate and oblique, a conical chocolate-brown patch beyond it on costal area; subterminal line indistinct, reddish, waved, with yellow spots on it towards costa and at middle, incurved at discal and submedian folds; a series of slight dark points just before termen. Hind wing dark greyish brown with indistinct pale curved postmedial line from vein 6 to inner margin; the termen slightly greyer. Underside brown, with two indistinct postmedial lines and a postmedial yellowish patch on costa of fore wing.

Ab. 1. Fore wing with the postmedial area suffused with reddish yellow, the subterminal line reddish yellow and rather diffused, the termen sometimes white except at tornus of fore wing and apex and tornus of hind wing.—Vavau.

Hab. SAMOA (*Duke of Northumberland*), 1 ♂ type; FRIENDLY IS., Vavau (*Eclipse Exp.*), 2 ♂. *Exp.* 68–78 millim.

7691: *Parallelia illibata*.

Noctua illibata, Fabr. Syst. Ent. p. 592 (1775); Hmps. Moths Ind. ii. p. 495.

Hemeroblemma peropaca, Hübn. Zutr. iii. p. 33, ff. 541–2 (1825).

Ophisma latabilis, Guen. Noct. iii. p. 241 (1852).

Head and thorax red-brown; pectus, legs, and abdomen greyish brown, the last dorsally tinged with blue-grey. Fore wing red-brown slightly irrorated with blue-grey scales; subbasal line rufous with a faint dark line in middle, from costa to submedian fold; antemedial line rufous with a red-brown line in middle, oblique and very slightly incurved; reniform greyish defined by red-brown and with slight curved dark striga in centre; medial line very indistinct, dark, waved, incurved below vein 4; postmedial line indistinct, red-brown, obliquely downcurved and defined on outer side by white from costa to vein 6, then dentate and faintly defined by rufous, incurved below vein 4, a semi-elliptical chocolate-brown patch beyond it on costal area extending to apex; subterminal line hardly traceable, rufous, waved, incurved below vein 3; the termen and cilia greyish except at apex and towards tornus; a series of slight blackish points just before termen. Hind wing grey-brown; an indistinct oblique blue-grey postmedial line from vein 6 to above tornus; the termen tinged with blue-grey from vein 6 to submedian fold with a fine dark terminal line with minute white points at the interspaces; the underside brown irrorated with grey, two indistinct minutely waved postmedial lines, and a subterminal series of small whitish spots.

Hab. HONGKONG (*Champion*), 1 ♀ ; CENTR. CHINA (*Reeves*), 1 ♀ ; SIKHIM (*Grote*), 2 ♂ ; ASSAM (*Budgley*), 1 ♀, Silhet, 1 ♂, Dibrugrah (*Ward*), 1 ♀ ; BENGAL, Calcutta, 1 ♀ ; CENTR. INDIA, Raipur (*Betham*), 1 ♀ ; CEYLON (*Templeton*), 1 ♂ ; BURMA, Moulmein (*Clerk*), 1 ♀, Rangoon, 2 ♀, Tenasserim, Donât Hills (*de Nicéville*), 1 ♀ ; JOHOR (*Ridley*), 1 ♀ ; SINGAPORE (*Ridley*), 1 ♂, 1 ♀. *Exp.* 64-72 millim.

7692. *Parallelia rigidistria*.

Ophisma rigidistria, Guen. Noct. iii. p. 240 (1852); Hmps. Moths Ind. ii. p. 496.

Naxia calefasciens, Wlk. xiv. 1405 (1852); Moore, Lep. Ceyl. iii. p. 168, pl. 168. f. 3.

Ophisma correctata, Wlk. xxxiii. 957 (1865).

Head and thorax bright red-brown; pectus, legs, and abdomen grey-brown, the tarsi ringed with white; abdomen dorsally tinged with blue-grey and with lateral dark lines with series of white points on them. Fore wing bright cupreous red-brown; a slight brown subbasal line faintly defined on outer side by white, excurved below costa and ending at submedian fold; antemedial line red-brown faintly defined on outer side by whitish, oblique, straight; medial line double, brown, the outer line indistinct, inwardly oblique, straight, defined on inner side by a narrow white band; postmedial line dark brown faintly defined on outer side by whitish, dentate, oblique to vein 6, then inwardly oblique, some white points beyond it on costa; a very indistinct pale waved subterminal line defined on outer side by a brown shade; a series of black points just before termen with white points beyond them on termen; cilia white mixed with rufous especially towards tornus. Hind wing grey-brown, the terminal area rather darker; a diffused whitish postmedial line from discal fold to inner margin towards tornus; a fine waved dark terminal line slightly defined on inner side by white at middle; cilia white, brown towards apex and tornus. Underside grey-brown; fore wing with slight waved medial and postmedial lines and faint sinuous pale subterminal line with darker suffusion before it, the termen whitish; hind wing with dark discoidal point, two minutely waved postmedial lines excurved below costa, and a whitish subterminal line excurved below vein 7.

Hab. BOMBAY, Kanara (*Ward*), 1 ♀ ; TRAVANCORE, Trivandrum (*Fergusson*), 1 ♀ ; CEYLON (*Lindesay*), 2 ♂, 1 ♀ type *calefasciens*; SINGAPORE (*Ridley*), 2 ♀ ; MYSOL; BR. N. GUINEA, Ekeikei (*Pratt*), 1 ♂, 3 ♀, Mt. Kebea (*Pratt*), 2 ♂ ; CHOISEUL I. (*Meek*), 1 ♂. *Exp.* 56-68 millim.

7693. *Parallelia latizona*. (Plate CCXIX. fig. 11.)

Ophisma latizona, Butl. Cist. Ent. i. p. 293 (1874).

Head and thorax orange; antennæ pale brownish; tibiæ and

tarsi brown, the latter ringed with white; abdomen dark brown. Fore wing cupreous red-brown, the basal area irrorated with blue-white, some blue-white scales on the veins below postmedial part of costa; subbasal line represented by double blue-white striae from costa and a single striga below the cell; an antemedial blue-white striga from costa; a broad pure white medial band, its inner edge slightly sinuous and somewhat incurved below median nervure, its outer edge slightly sinuous and excurved beyond lower angle of cell, two small dark brown discoidal spots on it; postmedial line with white bar from costa, then indistinct, dark, oblique to vein 6 and incurved below vein 3, some white points beyond it on costa; subterminal line bluish white and slightly waved from costa to vein 7, then very indistinct, waved, with whitish points at the veins; a series of minute white points just before termen; cilia chequered white and brown. Hind wing dark brown with whitish bar from vein 2 to tornus; some white points before middle of termen; cilia white slightly intersected with brown at the veins, brown at apex and tornus; the underside with waved white subterminal line, a waved brown terminal line with white before it except at apex and tornus.

Hab. NEW GUINEA (*Mathew*), 1 ♂; QUEENSLAND, 1 ♂, 1 ♀ type, Thursday I. (*Mathew*), 1 ♂, 1 ♀, Logan I. (*McGillivray*), 1 ♂, Duaringa (*Barnard*), 1 ♂; N. AUSTRALIA, Port Darwin (*Buckland, J. J. Walker*), 1 ♂, 3 ♀. *Exp.* 42-48 millim.

7694. *Parallelia infractifinis*. (Plate CCXIX. fig. 12.)

Fodina infractifinis, Lucas, Trans. Nat. Hist. Soc. Queensl. i. p. 110 (1895).

Ophiusa medioalbata, Beth.-Baker, Nov. Zool. xiii. p. 259 (1906).

♀. Head and thorax fulvous orange; antennae brown; legs brown with orange spots at extremities of femora; abdomen dark brown. Fore wing deep chocolate-brown; small white subbasal spots below costa and in cell; a few bluish white scales below costa before middle; a rather oblique medial white band expanding towards inner margin; a postmedial white spot from costa to vein 6; cilia pure white mixed with some brown at apex and tornus. Hind wing dark brown, the cilia pure white with some brown at apex and tornus; the underside with the terminal area irrorated with brown except towards apex and tornus.

Hab. BR. N. GUINEA, Dinawa (*Pratt*), type † *medioalbata* in Coll. Bethune-Baker; QUEENSLAND, Geraldton (*Turner*), 1 ♀. *Exp.* 52 millim.

7695. *Parallelia roulera*. (Plate CCXIX. fig. 13.)

Ophiusa roulera, Swinh. A. M. N. H. (8) iii. p. 97 (1909).

♂. Head, tegulae, and base of patagia orange-fulvous; the rest of thorax grey-brown; antennae brown; pectus and femora fulvous, the tibiae and tarsi grey-brown, the tarsi ringed with white;

abdomen grey-brown, Fore wing brown with a slight cupreous gloss and sparsely irrorated with blue-white scales; an oblique pure white medial band with sinuous edges, its inner edge angled outwards on median nervure, its outer edge angled outwards to just beyond lower angle of cell, enclosing a small brown spot at lower angle; postmedial line represented by an oblique white striga from costa and traces of an incurved waved white line from vein 4 just beyond the medial band to inner margin; a slight interrupted waved white subterminal line, excurved below vein 7 and at middle; a slight waved white line just before termen except at apex and towards tornus; cilia pure white, brown at apex and tornus. Hind wing dark brown; traces of an oblique white line from vein 2 to termen near tornus and of a slight waved white line before medial point of termen; cilia pure white, brown at apex and tornus; underside with slight waved white subterminal line and diffused waved white line just before termen except at apex and tornus.

Hab. KÉ Is., 1 ♂ type. *Exp.* 46 millim.

7696. *Parallelia frontina*.

Popilio frontinus, Donovan, Nat. Hist. Ins. New Holland, Lep. pl. 32. f. 2 (1805); Scott. Austral. Lep. ii. p. 23, pl. xviii.

Ophiusa pyrrhargyra, Wlk. xiv. 1435 (1858).

Leucanitis schraderi, Feld. Reis. Nov. pl. 116. f. 7 (1874).

Head and tegulæ orange, thorax red-brown; palpi at tips and antennæ brownish; pectus orange; legs brown, the tarsi with pale rings; abdomen dark brown. Fore wing reddish brown with a cupreous gloss; a narrow somewhat oblique white medial band, its outer edge slightly excurved below costa, at middle, and above inner margin; postmedial line very indistinct, dark with slight whitish mark at costa, incurved below vein 2; cilia white, slightly chequered with brown at tips. Hind wing dark brown, the cilia pure white except at apex and tornus.

Hab. AUSTRALIA (*Damel, McGillivray*), 2 ♂, 2 ♀; N. S. WALES (*Lambert, Mathew*), 1 ♂, 2 ♀ type *pyrrhargyra*. *Exp.* 50-54 millim.

7697. *Parallelia propyrrha*. (Plate CCXIX. fig. 14.)

Naxia propyrrha, Wlk. xiv. 1407 (1858).

♂. Head and tegulæ orange-yellow; thorax red-brown; pectus orange-yellow; abdomen reddish brown. Fore wing red-brown tinged with purple-grey, the postmedial area suffused with cupreous red except towards costa; subbasal line indistinct, diffused, red-brown, from costa to submedian fold; an indistinct waved red-brown antemedial line; medial line red-brown defined on outer side by violaceous white, inwardly oblique; an indistinct waved brown line, excurved beyond the cell, then oblique; postmedial line brown, oblique to vein 6, then waved, incurved below

vein 3, a rather truncate conical violaceous white patch irrorated with red-brown beyond it on costal area, with some minute white points on costa; a faint brown subterminal line oblique to vein 7, where it is angled outwards, then slightly waved; the termen and cilia violaceous white with a series of dark points before termen. Hind wing dark brown with a slight cupreous tinge; the termen and cilia violaceous white except towards apex and tornus, with a fine waved brown terminal line with dark points at the interspaces; dark postmedial and subterminal lines.

Hab. AUSTRALIA, 1 ♂ type; FIJI, 1 ♂. *Exp.* 54-58 millim.

7698. *Parallelia feneratrix*. (Plate CUXIX. fig. 15.)

Naxia feneratrix, Guen. Noct. iii. p. 256 (1852).

Head and thorax red-brown mixed with some purple-grey; palpi fulvous; pectus whitish and fulvous; abdomen dark brown. Fore wing red-brown tinged with purple-grey, the postmedial area cupreous red except towards costa; subbasal line brown, rather diffused, from costa to submedian fold; antemedial line red-brown, rather diffused, inwardly oblique and defined on outer side by purple-grey; reniform with rather irregular brown outline; medial line brown, oblique and sinuous below the reniform; postmedial line brown, obliquely downcurved to vein 6, then slightly waved, incurved below vein 4, a conical patch defined by diffused purple-grey beyond it on costal area with two grey points on costa; a diffused dark subterminal shade; the termen purple-grey with a waved brown terminal line; cilia purple-grey. Hind wing dark brown; a slight oblique grey subterminal line from vein 2 to tornus; cilia greyish at tips; the underside brown tinged with grey, indistinct waved dark medial and postmedial lines and a faint pale waved subterminal line.

Hab. JAVA (*Horsfield*), 2 ♂, 2 ♀ type. *Exp.* 50-52 millim.

7699. *Parallelia onelia*.

Naxia onelia, Guen. Noct. iii. p. 256 (1852); Moore, Lep. Ceyl. iii. p. 169, pl. 170. ff. 1-1 b; Hmps. Moths Ind. ii. p. 502.

Ophiura luteipalpis, Wlk. xxxiii. 968 (1865).

Head and tegulæ fulvous; antennæ brown; thorax and abdomen purple-grey mixed with some brown, the pectus fulvous in front. Fore wing purple-grey irrorated with brown, the postmedial area suffused with cupreous brown except towards costa; a diffused double waved red-brown subbasal line from costa to vein 1; a double red-brown antemedial line, the inner line slightly waved, the outer forming a rather oblique band diffused on inner side; a brown discoidal bar; medial line brown, waved, rather oblique to vein 4, then incurved; postmedial line dark brown, oblique to vein 6 and incurved below vein 4, a conical purple-grey patch

tinged with red-brown beyond it on costal area, defined below by dark brown with two white points on costa, its outer edge formed by the subterminal line, which is white, oblique to vein 7 where it is angled outwards, then indistinct, brown, waved; terminal area purple-grey irrorated with red-brown and with a series of brown striæ before termen. Hind wing purple-grey suffused with brown especially on terminal half; a subterminal purple-grey line from vein 4 to tornus; the termen irrorated with purple-grey except towards apex and tornus; cilia purple-grey; the underside purple-grey suffused with red-brown on subterminal area, indistinct waved brown medial and postmedial lines and a lunulate purple-grey subterminal line.

Hab. PUNJAB, Manpuri, 1 ♀; ASSAM, Silhet, 1 ♂; MADRAS, Wynád, 1 ♀, Nilgiris (*Hampson*), 1 ♂, 2 ♀; CEYLON (*Templeton*), 1 ♂, 2 ♀; BURMA, Rangoon (*Noble*), 1 ♀; PENANG (*Lloyd*), 1 ♂; SINGAPORE (*Wood-Jones*), 2 ♂; PHILIPPINES, Samboangan (*J. J. Walker*), 1 ♀. *Exp.* 42-54 millim.

Larva. Greyish white above, olive-grey below; each somite with small black spots in a somewhat linear series; 4th somite with a reddish lateral spot; the 1st two pairs of prolegs rudimentary. Food-plant, *Phyllanthus*.

Pupa efflorescent.

7700. *Parallelia lageos*. (Plate CCXIX. fig. 16.)

Navia lageos, Guen. Noct. iii. p. 256 (1852).

♀. Head brown suffused with fulvous; thorax red-brown mixed with grey, the tarsi ringed with whitish; abdomen grey-brown. Fore wing cupreous brown; the basal area with some purple-grey suffusion and an indistinct double brown subbasal line from costa to submedian fold filled in with purple-grey; antemedial line erect, sinuous, with a band of purple-grey suffusion beyond it; two slight discoidal points; medial line indistinct, brown, waved, excurved beyond the cell; postmedial line brown, obliquely downcurved from costa to vein 6 near the subterminal line, then waved, incurved below vein 3, a conical patch defined by purple-grey beyond it on costal area with two white points on costa; subterminal line waved, white and incurved towards costa, then very indistinct; the termen suffused with purple-grey from just below apex to vein 2 and with slight spot at tornus; a fine waved dark terminal line. Hind wing brown, the inner area with a slight greyish tinge to the faint bluish white postmedial line from vein 5 to inner margin; a whitish subterminal line from vein 2 to tornus; some grey irroration on middle of termen; cilia with a fine whitish line at base; the underside with a faint discoidal spot, two minutely waved postmedial lines and a subterminal line.

♂. Head and tegulæ bright fulvous orange; fore wing with

darker more prominent purplish white suffusion on basal area and beyond the antemedial line.

Hab. JAVA (*Horsfield*), 1 ♀ type; AMBOINA (*Pratt*), 1 ♂. *Exp.* 42 millim.

7701. *Parallelia umbrosa*. (Plate CCXIX, fig. 17.)

Ophiusa umbrosa, Wlk. xxxiii. 968 (1865); Hmps. Moths Ind. ii. p. 502.

Ophiusa obumbrata, Wlk. xxxiii. 969 (1865).

Head and tegulæ purple-grey tinged with reddish brown; thorax and abdomen purple-grey mixed with some brown. Fore wing purple-grey irrorated with brown, the outer half of medial area suffused with dark brown and the postmedial area with cupreous brown except towards costa; subbasal line brown, from costa to submedian fold, followed by a narrow brown band extending to inner margin; a sinuous brown antemedial line followed by a narrow oblique brown band; a brown discoidal bar; medial line brown, waved, oblique to vein 4, then incurved; postmedial line dark brown, oblique to vein 6 and incurved below vein 4, a conical purple-grey patch irrorated with brown beyond it on costal area with three white points on costa, its outer edge formed by the subterminal line, which is white and oblique to vein 7, where it is angled outwards, then indistinct, dark, waved; the termen purple-grey except at apex, with a series of black points before termen; cilia purple-grey. Hind wing purple-grey suffused with brown; an obliquely curved purple-grey postmedial line from discal fold to inner margin and a subterminal line from vein 4 to tornus; the termen purple-grey at middle with some dark points before termen; cilia purple-grey except at apex; the underside purple-grey irrorated with brown, a dark discoidal spot, waved medial and postmedial lines, a waved grey subterminal line defined by brown, and a series of black points before termen.

Hab. CENTRAL CHINA, Shanghai, 1 ♀ type, Fokien, Sam-sah (*de la Garde*), 1 ♂; FORMOSA, 1 ♀; PUNJAB, Manpuri, 1 ♀; ASSAM (*Badgley*), 1 ♂, Khásis (*Watson*), 1 ♀; BENGAL, Calcutta, 2 ♀; MADRAS, Malabar, 1 ♂, Nilgiris (*Hampson*), 1 ♂, 2 ♀, Coimbatore (*Walhouse*), 1 ♀ type *obumbrata*; UP. BURMA, Kalewa (*Watson*), 1 ♀; SINGAPORE (*Ridley*), 2 ♂, 1 ♀; PULO LAUT (*Doherty*), 1 ♀; JAVA (*Horsfield*), 1 ♂. *Exp.* 38–50 millim.

7702. *Parallelia circumsignata*. (Plate CCXIX, fig. 18.)

Naxia circumsignata, Guen. Noct. iii. p. 255 (1852); Hmps. Moths Ind. ii. p. 495.

♂. Head and thorax pale rufous; frons with pair of dark points above at sides; antennæ dark brown; abdomen grey-white tinged with red-brown. Fore wing pale purplish grey suffused with

pale red-brown and irrorated with dark brown; subbasal line represented by a curved brown striga from costa; antemedial line brown, incurved below costa, incurved and slightly sinuous below discal fold; a dark point in middle of cell and point at lower angle; a slight oblique whitish shade from lower angle of cell to inner margin at antemedial line; medial line brown, obliquely excurved from costa to vein 5, then inwardly oblique and waved; postmedial line brown, oblique and defined on outer side by white to vein 6, then inwardly oblique and waved, an oblique conical patch with some whitish suffusion on it and some white points on costa beyond it on costal area, defined below by brown and on outer side by the subterminal line, which is white and incurved from costa to vein 7, then bent inwards and indistinct brownish and waved to inner margin; the termen suffused with violaceous white except at apex; a fine waved brown terminal line and series of black points in the interspaces. Hind wing pale reddish brown, the terminal area irrorated and suffused with darker brown especially on apical area; a curved whitish postmedial line with blackish spot beyond it on inner margin; a faint waved subterminal line; the termen violaceous white except towards apex and tornus with a fine waved dark terminal line and series of points in the interspaces; cilia white, tinged with red-brown at base; the underside with small black discoidal spot and crenulate postmedial line.

Hub. ASSAM, Silhet (*Hearsey*), 3 ♂. *Exp.* 50 millim.

7703. *Parallelia palpalis*. (Plate CCXX. fig. 1.)

Ophiusa palpalis, Wlk. xxxiii. 968 (1865).

Dysgonia plutonia, Holl. *Psyche*, vii. p. 84, pl. iii. f. 10 (1894).

Head and thorax brown mixed with purple-grey; palpi tinged with fulvous; abdomen purple-grey suffused with brown. Fore wing purple-grey irrorated and in parts suffused with dark brown; antemedial line double, dark, and slightly sinuous; medial line dark, excurved beyond the cell, then oblique and sinuous; postmedial line dark brown, obliquely downcurved from costa to vein 6 where it is acutely angled outwards, then oblique and waved to submedian fold and erect to inner margin, a semi-elliptical purple-grey patch irrorated with brown beyond it on costal area defined by dark brown suffusion which extends from the medial line to apex, some white points on it at costa, its outer edge defined by white and angled inwards at vein 7; traces of a waved brown subterminal line from the patch to inner margin; a fine waved brown terminal line defining a series of white points in the interspaces. Hind wing purplish grey suffused with brown; traces of an oblique grey subterminal line from vein 4 to tornus; a fine waved dark terminal line; the underside brown irrorated with purple-grey, an indistinct dark postmedial line excurved from below costa to vein 4 and a waved grey subterminal line.

Hab. SIERRA LEONE (*Morgan*), 1 ♂ type; GOLD COAST, Obuassi (*Bergman*), 1 ♀; S. NIGERIA, Lagos (*Dudgeon*), 1 ♀; GABOON, Ogové R. *Exp.* 40-48 millim.

7704. *Parallelia trogosema*, n. sp. (Plate CCXX. fig. 2.)

Head and thorax red-brown; antennæ with the shaft whitish in front towards base; pectus, legs, and abdomen grey-brown. Fore wing purplish grey irrorated and in parts suffused with dark reddish brown especially on basal area; an oblique whitish subbasal line from costa to submedian fold; antemedial line whitish defined on inner side by dark brown, erect, straight, a slight dark discoidal lunule and indistinct waved line from lower angle of cell to inner margin; postmedial line dark brown, obliquely down-curved from costa to vein 6 where it is acutely angled outwards, then obliquely incurved, a semi-elliptical purplish grey patch tinged with brown and defined by white beyond it on costal area with chocolate-brown suffusion before and below it and an oblique chocolate-brown patch beyond it from apex, some white points on it at costa, its outer edge indented below costa; an oblique subterminal series of obscure dentate dark marks from the patch to inner margin; a fine crenulate dark terminal line with black points at the interspaces. Hind wing dark greyish brown with a fine dark terminal line; the underside brown irrorated with greyish, a curved minutely waved dark postmedial line.

Hab. SIERRA LEONE (*Morgan*), 1 ♂, 1 ♀; S. NIGERIA, Ilesha (*Humfrey*), 1 ♀ type. *Exp.* 44-46 millim.

7705. *Parallelia renalis*. (Plate CCXX. fig. 3.)

Ophiusa renalis, Hmps. Moths Ind. ii. p. 499 (1894).

Head and thorax pale rufous; mid and hind tarsi whitish; abdomen pale grey-brown, dorsally suffused with fuscous brown on basal half. Fore wing bright rufous, the terminal area whitish tinged with rufous except at apex; a curved red-brown subbasal line from costa to submedian fold; antemedial line red-brown, slightly angled outwards below costa, then slightly incurved, a slightly deeper rufous shade beyond it; a slight dark discoidal bar; medial line indistinct, excurved to vein 4, then oblique and sinuous; postmedial line red-brown, oblique to vein 6, then inwardly oblique, a conical greyish patch defined by red-brown beyond it on costal area and an oblique brownish shade from the angle of postmedial line to tornus; a waved dark terminal line. Hind wing greyish suffused with brown, the terminal area somewhat paler and with traces of an oblique pale subterminal line from vein 4 to tornus; the underside whitish tinged with rufous, a dark discoidal point and indistinct dark waved medial, postmedial, and subterminal lines.

Hab. BOMBAY (*Swinhoe*), 1 ♂, 1 ♀ type, Kutch, 1 ♀; CEYLON (*Mackwood*), 1 ♀, Trincomali (*Yerbury*), 1 ♂. *Exp.* 42–46 millim.

7706. *Parallelia proxima*. (Plate CCXX. fig. 4.)

Ophiusa proxima, Hmps. Ann. S. Afr. Mus. ii. p. 339 (1902).

Head and thorax purple-grey tinged with red-brown; pectus, legs, and abdomen purple-grey, the tarsi ringed with white. Fore wing purple-grey suffused with cupreous red-brown, the inner part of medial area and terminal area except at apex greyer; antemedial line double, red-brown, the inner line indistinct and sinuous; a dark discoidal striga; medial line brown, waved, excurved beyond the cell, then incurved; postmedial line red-brown, oblique and defined on outer side by whitish to vein 6, then incurved, sinuous and slightly defined on outer side by grey, a conical purplish grey patch beyond it on costal area with some pale points on costa, defined by an oblique cupreous brown shade from apex; a series of black points before termen. Hind wing purplish grey suffused with brown; a faint pale subterminal line from vein 2 to tornus; the termen greyer at middle; a fine waved dark terminal line; the underside purplish grey tinged with brown, a curved waved dark postmedial line and traces of a waved subterminal line.

Ab. 1. Head, thorax, and fore wing purple-grey suffused with dark brown.

Hab. CONGO, Katanga, Kambove (*Neave*), 1 ♂; N.E. RHODESIA, Mananga R. (*Neave*), 1 ♂, Luangwa Valley (*Neave*), 2 ♂, Niamadzi R. (*Neave*), 1 ♀; BR. C. AFRICA, Chiromo (*Neave*), 1 ♀, Lr. Shire Valley (*Neave*), 1 ♀; NATAL, Durban (*Gooch, Clark*), 2 ♀ type. *Exp.* 44–48 millim.

7707. *Parallelia pudica*. (Plate CCXX. fig. 5.)

Ophisma pudica, Möschl. Abk. Senck. Ges. xv. p. 85, f. 12 (1888).

Ophiusa orthæa, Mab. Ann. Soc. Ent. Fr. (6) x. p. 44 (1890).

Head, thorax, and abdomen red-brown. Fore wing pale red-brown with a greyish tinge, the basal area slightly darker; antemedial line red-brown defined on outer side by whitish, erect, straight; two dark discoidal points; medial line indistinct, dark, excurved to vein 4, then incurved; postmedial line red-brown slightly defined on outer side by whitish, very oblique to vein 6 and incurved below vein 4, some white points beyond it on costa, and in male a semi-elliptical whitish costal patch tinged with brown; a faint oblique brown streak from apex to the angle of postmedial line; traces of a pale waved subterminal line from vein 6 to inner margin, incurved at submedian fold; a series of slight dark points before termen and fine pale line at base of cilia. Hind wing reddish brown; a curved whitish postmedial line from

discal fold to inner margin and traces of a subterminal shade; cilia with a fine pale line at base and whitish tips; the underside irrorated with whitish, a faint waved dark postmedial line, the terminal area whiter with waved inner edge and series of black points before termen.

Ab. 1. Grey-brown without any reddish tinge.

Hab. GOLD COAST (*Johnston*), 1 ♀, Bibianaha (*Spurrell*), 1 ♂, Prahsu, 1 ♀, Kumasi (*Whiteside*), 1 ♂; FR. GUINEA, type † ♂ *orthæa* in Coll. Mabille; S. NIGERIA, Old Calabar (*Crompton*), 1 ♂, 1 ♀. *Exp.* 52-58 millim.

7708. *Parallelia dentilinea*. (Plate CCXX. fig. 6.)

Ophiusa dentilinea, Beth.-Baker, Nov. Zool. xiii. p. 257 (1906).

♀. Head and thorax dark red-brown mixed with grey; tarsi ringed with whitish; abdomen grey-brown, the ventral surface dark brown irrorated with whitish. Fore wing deep red-brown irrorated with ochreous; subbasal line ochreous white, excurved below costa and ending at submedian fold; antemedial line ochreous white, defined by blackish on outer side from costa to median nervure, oblique, sinuous; orbicular a minute pure white spot defined by black; an oblique sinuous ochreous white medial line; the outer half of medial area deep chocolate-brown; postmedial line white, oblique from costa to discal fold where it is sharply angled outwards and slightly angled inwards at vein 6, then inwardly oblique and slightly angled inwards at veins 4 and 3, then excurved and again angled inwards at vein 1, some pale points beyond it on costa; an oblique black shade from apex with traces of the waved whitish subterminal line before it, with two small black spots surrounded by white scales at veins 4 and 3 and defined on each side by blackish towards inner margin; a dark shade on middle of terminal area; a fine crenulate dark terminal line with black points in the interspaces; a fine pale line at base of cilia. Hind wing black-brown with a greyish tinge; a slight oblique grey bar at tornus; a minutely waved black terminal line slightly defined by grey on inner side from vein 4 to submedian fold; cilia ochreous white with fuscous patches at apex, middle and towards tornus; the underside greyish thickly irrorated with fuscous, a slight discoidal point and indistinct minutely waved postmedial and subterminal lines, the latter defined by small grey lunules on outer side.

Hab. BR. N. GUINEA, Mt. Kebea (*Pratt*), 1 ♀. *Exp.* 52 millim. Type † ♀ in Coll. Bethune-Baker.

7709. *Parallelia subacuta*. (Plate CCXX. fig. 7.)

Ophiusa subacuta, Beth.-Baker, Nov. Zool. xiii. p. 258 (1906).

Head and thorax red-brown, the tegulae slightly grey at tips and the patagia with slight oblique grey line at middle; pectus,

legs, and abdomen dark greyish brown, the tarsi with pale rings and the abdomen with small sublateral white tufts on medial segments. Fore wing with the basal area red-brown; subbasal line represented by a faint pale curved striga from costa; antemedial line dark brown, oblique, straight, followed by a grey band suffused with red-brown and very slightly expanding at costa and inner margin; the outer part of medial area deep chocolate-brown to the postmedial line, which is dark brown defined on outer side by whitish, obliquely downcurved from costa to below vein 6 where it is angled outwards, then oblique to vein 2 and incurved to inner margin at the medial band, some white points beyond it on costa; an oblique black-brown shade diffused on inner side from apex to vein 6 near the postmedial line, excurved above vein 6; a faint oblique brown subterminal line from vein 6 to inner margin, with small blackish spots at veins 4, 3; a fine waved brown terminal line with black points at the interspaces; cilia grey-brown with a fine pale line at base. Hind wing dark greyish brown; an oblique whitish subterminal line from vein 3 to tornus; the termen slightly tinged with grey at middle; a fine brown terminal line and whitish line at base of cilia, which are whitish at tips towards apex; the underside grey-brown irrorated with whitish, a faint dark discoidal spot, slightly waved medial and postmedial lines, and a faint waved whitish subterminal line.

Ab. 1. Fore wing with more or less violaceous white suffusion on medial area before and beyond the medial line.

Hab. BR. N. GUINEA, Aroa R. (*Meek*), 1 ♂, Dinawa (*Pratt*), 1 ♂, 2 ♀, Ekeikei (*Pratt*), 2 ♂, 1 ♀, Mt. Kebea (*Pratt*), 2 ♂, 1 ♀. *Exp.* 46–52 millim.

***7710. *Parallelia arcifera*. (Plate CCXX. fig. 8.)**

Parallelia arcifera, Druce, A. M. N. H. (8) ix. p. 554 (1912).

♂. Head, thorax, and abdomen grey-brown; legs with the spurs and tarsi ringed with whitish. Fore wing purplish grey-brown; subbasal line whitish defined on inner side by dark brown, from costa to submedian fold; antemedial line whitish defined on inner side by dark brown, slightly excurved below the cell; outer half of medial area dark brown defined on inner side by the medial line which is incurved, and on outer side by the whitish postmedial line, which is oblique and slightly sinuous to vein 6 where it is acutely angled outwards, then incurved, excurved at vein 2 and reaching inner margin close to the medial line, some whitish points beyond it on costa; an oblique dark shade from apex diffused on inner side, excurved above vein 6 on which it is bent inwards to near the angle of the postmedial line; traces of a pale waved subterminal line from vein 6 to inner margin with a slight dark shade before it below vein 3; a fine dark terminal line angled inwards to slight points in the interspaces. Hind

wing dark greyish brown, with a faint oblique greyish bar from vein 3 to tornus; the termen faintly greyish except towards apex and tornus with a fine dark terminal line, and pale line at base of cilia.

Hab. GAMBIA (*Moloney*), type \dagger ♂ in Coll. Druce. *Exp.* 46 millim.

7711. *Parallelia joviana*.

Noctua joviana, Stoll, Pap. Exot. iv. p. 237, pl. 399. f. B (1782); Moore,

Lep. Ceyl. iii. p. 175, pl. 170. ff. 9, 9a; Hmps. Moths Ind. ii. p. 499.

Noctua sinuata, Fabr. Mant. Ins. ii. p. 145 (1787).

Ophiura myops, Guen. Noct. iii. p. 265 (1852).

Head and thorax pale red-brown, the patagia with slight oblique grey line near tips; pectus, legs, and abdomen grey-brown, the tarsi ringed with whitish, the abdomen with small sublateral tufts of white scales on medial segments. Fore wing purplish grey suffused and irrorated with red-brown especially on basal area, the outer part of medial area deep chocolate-brown; subbasal line brown defined on outer side by whitish, slightly excurved



Fig. 132.—*Parallelia joviana*, ♂. $\frac{1}{2}$.

below costa and ending at submedian fold; antemedial line dark brown defined on outer side by whitish, oblique and slightly incurved; medial line dark, incurved, defining the dark area which extends to the postmedial dark line which is defined on outer side by whitish, oblique to vein 6 where it is angled outwards, then obliquely incurved, and excurved between veins 3, 2, to inner margin at the medial line, some white points beyond it on costa; an oblique black-brown shade diffused on inner side from apex to vein 6 near the postmedial line where it is defined below by a white streak; a faint oblique subterminal line from vein 6 to inner

margin, with slight dark marks at the veins with white streaks beyond them; a slight brown terminal line with minute blackish points before it in the interspaces; cilia dark brown with a fine whitish line at base. Hind wing dark greyish brown; an oblique whitish subterminal line from vein 3 to tornus; the termen tinged with grey except towards apex and tornus; a fine brown terminal line and whitish line at base of cilia; the underside greyish suffused with reddish brown, two indistinct dark postmedial lines waved towards costa, and a faint waved whitish subterminal line.

Ab. 1. Fore wing with the outer medial area not darker than the ground-colour, the postmedial line defined on inner side by dark brown.

Hab. LOO-CHOO Is. (*Pryer*), 5 ♂, ASSAM (*Badgley*), 1 ♂; BENGAL, Ganjam, 1 ♀; BOMBAY, 1 ♀, Kutch, 1 ♂, Kanara (*Ward*), 1 ♀; MADRAS, 2 ♀, Malabar, 1 ♀, Nilgiris (*Hampson*), 1 ♂, 1 ♀; CEYLON (*Templeton*), 2 ♀; BURMA, Moulmein (*Clerk*), 1 ♀, Rangoon (*Noble*), 1 ♀; ANDAMANS; JAVA (*Horsfield*), 2 ♀; Ké Is., 2 ♂; BR. N. GUINEA, Ekeikei (*Pratt*), 1 ♂, Mt. Kebea (*Pratt*), 2 ♀, Milne Bay (*Meek*), 1 ♂; D'ENTRECASTEAUX Is., Fergusson I. (*Meek*), 1 ♂; QUEENSLAND, Brisbane (*Turner*), 1 ♀, Gympie, 1 ♀; LOYALTY Is., Lifu, 1 ♀. *Exp.* 50–56 millim.

Larva. Bluish grey above, yellowish ventrally, sparsely spotted with black; the 4th somite with larger sublateral spot; 11th somite with pair of red dorsal prominences; head grey spotted with black; the 1st two pair of prolegs rudimentary. Food-plant, *Phyllanthus*.

Pupa with white efflorescence.

7712. *Parallelia solomonensis*, n. sp. (Plate CCXXII. fig. 2.)

♀. Head and thorax pale red-brown; pectus, legs, and abdomen grey-brown. Fore wing grey suffused with red-brown; a faint dark sinuous subbasal line from costa to submedian fold; antemedial line red-brown, oblique, straight; medial line oblique, straight, the area beyond it deep red-brown to the postmedial line, which is dark brown, obliquely downcurved and defined on outer side by white to below vein 6 where it is angled outwards, then indistinctly double filled in with whitish, incurved, slightly excurved at vein 2, then incurved to inner margin near the medial line, some whitish points beyond it on costa; an oblique brown shade diffused on inner side and defined on outer side by whitish from apex to vein 6 where it is bent inwards to near the angle of postmedial line; an indistinct dentate whitish subterminal line from vein 6 to inner margin, diffused at middle; a series of slight black points before termen and a fine pale line at base of cilia. Hind wing grey-brown; an oblique whitish line from vein 2 to termen near tornus; the termen greyish at middle with a slight waved brown terminal line and fine whitish line at base of cilia;

the underside grey suffused with red-brown, two slight waved dark postmedial lines and a faint subterminal shade.

Hab. SOLOMON Is., Alu (*Woodford*), 2 ♀ type. *Exp.* 54–58 millim.

7713. *Parallelia maturescens*. (Plate CCXX. fig. 9.)

Opisma maturescens, Wlk. xiv. 1382 (1858); Hmps. Moths Ind. ii. p. 499.

Head and thorax red-brown; antennæ with the shaft whitish in front towards base; pectus, legs, and abdomen greyish brown. Fore wing red-brown with a purple grey gloss beyond the antemedial line and on terminal area; traces of a greyish subbasal line from costa to submedian fold; antemedial line brown, straight, erect; postmedial line brown defined on outer side by purple-grey, obliquely downcurved from costa to vein 6 where it is angled outwards, then obliquely incurved, some pale points beyond it on costa; an oblique black-brown shade diffused on inner side from apex to vein 6 where it is bent inwards to the angle of the postmedial line; a faint dentate dark subterminal line produced to slight whitish streaks on the veins, from vein 6 to inner margin; a slight dark terminal line with points before it in the interspaces. Hind wing dark brown with a cupreous gloss, the termen tinged with purple-grey at middle; a faint greyish subterminal shade from vein 4 to tornus; a fine waved brown terminal line; the underside with dark discoidal point and indistinct curved postmedial line except on inner area.

Hab. PUNJAB, Deyra Dhun, 1 ♀; SIKHIM; ASSAM, Khâsis, 1 ♂, Silhet (*Stainsforth*), 1 ♂, 2 ♀ type. *Exp.* 52–54 millim.

7714. *Parallelia amygdalis*.

Dysgonia amygdalis, Moore, Lep. Ceyl. iii. p. 551, pl. 214. f. 3 (1887); Hmps. Moths Ind. ii. p. 502.

Head and thorax red-brown mixed with purple-grey; pectus, legs, and abdomen purple-grey tinged with brown. Fore wing purple-grey suffused with cupreous brown, the terminal area pale purple-grey except at apex; antemedial line dark slightly defined on outer side by purple-grey, inwardly oblique to submedian fold, then outwardly oblique; a diffused rather oblique purple-grey medial band; postmedial line dark, oblique and slightly defined on outer side by purple-grey to vein 6, then obliquely incurved, some whitish points beyond it on costa; an oblique blackish streak from apex to vein 6, diffused on inner side and excurved above vein 6; a faint dentate whitish subterminal line produced to white points on the veins from vein 6 to inner margin, the area beyond the series of points pale purple-grey; a fine crenulate black terminal line, angled inwards in the interspaces where there are white points beyond it. Hind wing grey-brown; a purple-grey subterminal line from vein 3 to inner margin; the termen purple-grey

except towards apex and tornus with a fine waved dark terminal line; cilia purple-grey; the underside purple-grey irrorated with brown, two indistinct waved brown postmedial lines and a waved whitish subterminal line.

Hab. SIKHIM; MADRAS, Nilgiris (*Hampson*), 1 ♂, 1 ♀; TRAVANCORE, Trivandrum (*Fergusson*), 1 ♀; CEYLON, 1 ♀ type. *Exp.* 44-54 millim.

7715. *Parallelia humilis*. (Plate CCXX. fig. 10.)

Dysgonia humilis, Holl. Psyche, vii. p. 85, pl. ii. f. 23 (1894).

Head and thorax reddish brown, the latter greyish behind; palpi, pectus, legs, and abdomen dark grey-brown. Fore wing reddish brown; a faint diffused, dark subbasal line from costa to submedian fold; antemedial line diffused, dark, inwardly oblique; postmedial line dark defined on outer side by greyish and obliquely downcurved from costa to vein 6 where it is angled outwards and met by a slight oblique dark streak from apex, then double filled in with grey and obliquely incurved, some grey points beyond it on costa and some purplish grey irroration on costal area; subterminal line purplish grey, oblique and dentate from the costal patch to inner margin; a fine waved dark line before termen. Hind wing dark greyish brown.

Hab. SIERRA LEONE (*Clements*), 2 ♂; S. NIGERIA, Old Calabar (*Crompton*), 1 ♂; CAMEROONS, Ja R., Bitje, 1 ♀; GABOON, Ogové R. *Exp.* 34-40 millim.

7716. *Parallelia insignifica*. (Plate CCXX. fig. 11.)

Ophiusa insignifica, Beth.-Baker, Nov. Zool. xiii. p. 258 (1906).

♂. Head and thorax grey-brown; abdomen pale grey-brown. Fore wing grey-brown with a reddish gloss, the inner half of medial area rather greyer; antemedial line dark brown, rather oblique, straight; a white point in middle of cell; medial line indistinct, dark, excurved beyond the cell, then incurved; postmedial line dark brown, oblique and defined on outer side by white to vein 6, then inwardly oblique, very slightly waved, faintly defined on outer side by whitish and with white points at the veins, a somewhat paler patch beyond it on costal area with some white points on costa; subterminal line very indistinct, whitish, waved, excurved below vein 7; a series of minute black points just before termen. Hind wing brown; a slight oblique whitish subterminal line from vein 2 to tornus; a darker terminal line and fine pale line at base of cilia; the underside grey irrorated with brown, a black discoidal point, two indistinct crenulate postmedial lines, a diffused waved subterminal line, and a terminal series of black points.

Hab. BR. N. GUINEA, Mt. Kebea (*Pratt*), 1 ♂. *Exp.* 42 millim.

7717. *Parallelia absentimacula*. (Plate CCXX. fig. 12.)

Naxia absentimacula, Guen. Noct. iii. p. 255 (1852); Hmps. Moths Ind. ii. p. 498.

Head and thorax pale rufous; pectus, legs, and abdomen whitish tinged with rufous. Fore wing pale rufous suffused with violaceous grey especially on medial area and terminal area except at apex; a slight whitish subbasal line from costa to vein 1; antemedial line red-brown defined on inner side by grey, straight, oblique; medial line red-brown, sinuous, incurved at lower angle of cell; postmedial line red-brown defined on outer side by grey, oblique below vein 6 and slightly bent outwards to inner margin; a faint pale dentate subterminal line; a series of slight blackish points before termen. Hind wing pale grey tinged with brown, the postmedial area suffused with brown, expanding on apical area to termen; a grey subterminal line from vein 3 to termen at vein 1 defined by some dark irroration beyond it; a fine dark terminal line with minute points at the interspaces; cilia grey-white; the underside whitish, the costal area tinged with red-brown, a dark discoidal point, traces of waved medial and postmedial lines on costal half, a series of black points before termen.

Hab. N. ASSAM, Dibrugrah (*Ward*), 1 ♂; CEYLON, 1 ♀, Kandy (*Yerbury*), 1 ♂; ANDAMANS; JAVA (*Horsfield*), 4 ♂, 3 ♀ type; BR. N. GUINEA, Ekeikei (*Pratt*), 2 ♂, 2 ♀; D'ENTRECASTEAUX Is., Fergusson I. (*Meek*), 1 ♂, 1 ♀; TROBRIAND Is., Kiriwini (*Meek*), 2 ♀. *Exp.* 46-54 millim.

Larva. Ochreous with numerous striated lines, brownish on dorsum, reddish at sides; 11th somite with a pair of dorsal prominences; head reticulated with scarlet.

Pupa covered with violaceous white bloom, in a leaf spun up.

7718. *Parallelia lilacea*. (Plate CCXX. fig. 13.)

Ophiusa lilacea, Beth.-Baker, Nov. Zool. xiii. p. 256 (1906).

♂. Head and thorax pale rufous slightly mixed with white; pectus and legs whiter, abdomen pale grey tinged with rufous, the anal tuft whitish. Fore wing whitish suffused with pale rufous and with slight dark irroration, the outer half deeper rufous except the termen which is white; faint traces of an oblique waved antemedial line; a white point in end of cell; a straight rather inwardly oblique black-brown line just beyond the cell from costa to inner margin, followed by a slight dark line from costa to vein 5; postmedial line black-brown slightly defined by white on outer side, indistinct towards costa, sinuous to vein 6, then incurved and closely approximated to the straight line, some white points beyond it on costa; faint traces of a waved white subterminal line, incurved below costa and with small black spot before it below vein 7; a series of black points just before termen. Hind wing with the

basal area whitish suffused with pale red-brown to the very indistinct whitish medial line; the terminal half fuscous brown with some white on termen from below apex expanding into a large patch below vein 2 traversed by an indistinct diffused brown band; a series of black points just before the fine dark terminal line; cilia white. Underside of fore wing white tinged with red-brown except at termen, a slight brown medial line and minutely waved postmedial line excurved below costa; hind wing white faintly irrorated with red-brown and tinged with red-brown beyond the postmedial line on costal half, a black discoidal point and faint waved medial and postmedial lines.

Hab. DUTCH N. GUINEA, Arfak Mts., Ninay Valley (*Pratt*), 1 ♂; BR. N. GUINEA, Mt. Kebea (*Pratt*), type ♀ ♂ in Coll. Bethune-Baker. *Exp.* 68 millim.

7719. *Parallelia duplexa*.

Naria duplexa, Moore, P. Z. S. 1883, p. 26, pl. 6. f. 4; Hmps. Moths Ind. ii. p. 498.

♀. Head and thorax bright rufous; pectus, legs, and abdomen reddish brown slightly mixed with grey. Fore wing bright rufous slightly irrorated with purple-grey except on outer half of medial area; subbasal line purple-grey, from costa to submedian fold; antemedial line rufous slightly defined on each side by purple-grey, obliquely incurved; a minute whitish spot in middle of cell; a narrow rather inwardly oblique purple-grey medial band, diffused on inner side and joining the antemedial line at inner margin; postmedial line brown, slightly defined on outer side by purple-grey, oblique and sinuous to vein 6, then incurved and waved, some whitish points beyond it on costa; a faint waved purple-grey sub-terminal line with a yellowish mark at inner margin; an oblique red-brown streak from apex; the termen suffused with purple-grey except at apex and with a series of black points just before termen; a fine waved brown terminal line and fine line near base of cilia. Hind wing brown; the termen suffused with purple-grey except towards apex and tornus; a fine brown terminal line and fine line near base of cilia; the underside brown irrorated with grey and with traces of a curved postmedial line.

Hab. SIKHIM, 1 ♀ type. *Exp.* 58 millim.

7720. *Parallelia maturata*.

Ophisma maturata, Wlk. xiv. 1882 (1858); Hmps. Moths Ind. ii. p. 499. *Ophiusa falcata*, Moore, Lep. Atk. p. 171, pl. 6. f. 14 (1882).

Head and tegulæ bright red-brown slightly irrorated with purple; thorax dark red-brown irrorated with purple and with an oblique purple line at middle of patagia; pectus, legs, and abdomen greyish brown. Fore wing with the basal half purple-grey thickly

irrorated with red-brown on basal area and on costal area to beyond the antemedial line, the postmedial area deep chocolate-brown, the terminal area pale violaceous brown except at apex; an oblique whitish subbasal line from costa to submedian fold; antemedial line double, red-brown filled in with purple-grey, oblique, straight; medial line red-brown, erect, straight defining the dark area; postmedial line double, red-brown filled in with purple-grey, obliquely downcurved from costa to vein 6 where it is angled outwards and met by a very oblique black-brown streak from apex, diffused to costa towards apex, the line then obliquely incurved; traces of a dentate whitish subterminal line from vein 6 to inner margin produced to whitish points on the veins; a fine crenulate red-brown terminal line. Hind wing reddish brown, the inner area with a faint blue-grey gloss; the termen tinged with blue-grey except towards apex and tornus; a fine waved brown terminal line; the underside red-brown slightly irrorated with grey, the inner and terminal areas tinged with grey, two indistinct red-brown postmedial lines waved on costal half, a series of minute black points before termen.

Hab. COREA, Gensan (*Ito*), 1 ♀; CENTR. CHINA, Shanghai (*Pryer*), 1 ♀, Kiukiang (*Pratt*), 2 ♂, 2 ♀, Ship-y-shán, 2 ♂; W. CHINA, Ta-chien-lu (*Pratt*), 1 ♂; ASSAM, Khásis (*Badgley*), 1 ♂, 1 ♀; BENGAL, Calcutta; BOMBAY; MADRAS, Nilgiris; PENANG (*Sir W. Morris*), 1 ♂ type. *Exp.* 54-64 millim.

7721. *Parallelia acuta*.

Ophiusa acuta, Moore, P. Z. S. 1883, p. 27, pl. 6. f. 5; Hmps. Moths Ind. ii. p. 498.

Head and thorax red-brown tinged with grey; patagia with a slight dark and white line near tips; pectus, legs, and abdomen grey-brown. Fore wing red-brown slightly irrorated with purple-white; a small tuft of white-tipped scales at base of vein 1; subbasal line brown defined on outer side by whitish, oblique, from costa to submedian fold; antemedial line red-brown defined on each side by purplish white, oblique to vein 1, then very oblique; medial line with a broad band of purple-white suffusion before it, inwardly oblique, the area between it and the postmedial line deep chocolate-brown; postmedial line brown defined on outer side by violaceous white, oblique to vein 6 where it is angled outwards, then inwardly oblique, some whitish points beyond it on costa; an oblique brown streak diffused on inner side from apex to vein 6 where it is connected by a white streak with the angle of the postmedial line; an indistinct pale dentate subterminal line from vein 6 to inner margin, produced to white points on the veins and with some ochreous at inner margin; the terminal area suffused with purplish white; a series of slight dark points before termen and a fine dark terminal line; a fine pale line at base of cilia. Hind wing reddish brown,

the termen suffused with purple-white except towards apex and tornus; a fine brown terminal line with points at the interspaces and pale line at base of cilia; the underside irrorated with purple-white, a slight dark discoidal spot, indistinct waved postmedial line and maculate ochreous subterminal line excurved at vein 6.

Hab. ASSAM, Khâsis, 1 ♂, 1 ♀. *Exp.* ♂ 58, ♀ 62 millim.

7722. *Parallelia conjunctura*. (Plate CCXX. fig. 14.)

Ophiusa conjunctura, Wlk. xv. 1830 (1858).

Dysgonia neptunia, Holl. Psyche, vii. p. 84, pl. iii. f. 9 (1894).

Head, thorax, and abdomen red-brown; pectus, legs, and ventral surface of abdomen grey-brown, the spurs ringed with whitish and the tarsi whitish below, the base of abdomen whitish and minute lateral tufts of white scales on terminal segments. Fore wing purple-grey suffused with reddish brown, the basal area rather darker; a slight whitish subbasal line, angled outwards below costa and ending at submedian fold; antemedial line dark brown slightly defined on outer side by whitish, slightly excurved below the cell; medial line whitish, strongly incurved, the area between it and the postmedial line deep chocolate-brown; postmedial line whitish and obliquely downcurved from costa to vein 6 where it is strongly angled outwards, then slight, dark, double and obliquely incurved to inner margin at the medial line, some white points beyond it on costa; an oblique whitish streak defined on inner side by diffused dark brown from apex to vein 6, then bent inwards to the angle of the postmedial line; a subterminal series of slight dark and whitish streaks on the veins below the costal patch; a fine dark line just before termen angled inwards in the interspaces. Hind wing dark brown; traces of an oblique greyish striga at tornus; a fine dark terminal line and pale line at base of cilia; the underside brown slightly irrorated with grey; a faint waved dark postmedial line, traces of a waved grey line towards tornus, and a series of black points before termen.

Hab. SIERRA LEONE (*Morgan*), 2 ♀ type; GOLD COAST, Kumasi (*Whiteside*), 1 ♀; GABOON, Ogové R.; UGANDA, Entebbe (*Minchin*), 1 ♂; NATAL, Durban (*Marley, Clark*), 1 ♂, 1 ♀. *Exp.* 44–50 millim.

7723. *Parallelia curvata*.

Ophiusa curvata, Leech, P. Z. S. 1889, p. 546, pl. 53. f. 8.

Head and thorax red-brown, the patagia with a slight oblique grey line towards tips; pectus, legs, and abdomen purplish brown, the last with small sublateral tufts of white scales on medial segments. Fore wing with the basal area red-brown, darker towards the antemedial line; subbasal line dark brown defined on outer side by grey, excurved below costa, then oblique and ending at

submedian fold; antemedial line dark brown defined on outer side by whitish, excurved in submedian interspace, followed by a pale grey band tinged with brown and constricted at middle; medial line dark brown, incurved, the area beyond it deep chocolate-brown to the postmedial line, which is dark brown defined on outer side by grey, obliquely downcurved from costa to below vein 6 where it is angled outwards, then obliquely incurved to inner margin near the medial line, some whitish points beyond it on costa; postmedial area grey suffused with red-brown, the terminal area greyer; an oblique black-brown shade diffused on inner side and defined on outer side by whitish from apex to vein 6 near the postmedial line, excurved above vein 6; an indistinct pale dentate subterminal line from vein 6 to inner margin, produced to white points on the veins; a fine brown terminal line with minute blackish points before it in the interspaces and a fine pale line at base of cilia. Hind wing grey-brown; a faint whitish shade from middle of costa to inner margin towards tornus, and a grey shade from vein 3 to tornus; the termen tinged with grey except towards apex and tornus; a brown terminal line with minute black points at the interspaces and a fine pale line at base of cilia; the underside grey suffused with brown, the termen greyer, two indistinct sinuous postmedial lines.

Hab. JAPAN, Kobé (*Lewis*), 1 ♂, Yokohama (*Pryer*), 1 ♂, 2 ♀; LOO-CHOO Is. (*Pryer*), 1 ♂; COREA, Gensan (*Ito*), 2 ♂ type. *Exp.* 48-52 millim.

7724. *Parallelia arcuata*.

Ophiusa joviana, Guen. Noct. iii. p. 269 (nec Cram.).

Ophiusa arcuata, Moore, P. Z. S. 1877, p. 609; id. Lep. Ceyl. iii. p. 176, pl. 171. f. 3; Hmps. Moths Ind. ii. p. 499.

Ophiusa guenei, Snell. Tijds. v. Ent. xxiii. p. 103 (1880).

Head and thorax red-brown; antennæ with the shaft whitish in front towards base; tegulæ slightly grey at tips and the patagia with slight oblique grey line at middle; pectus, legs, and abdomen grey-brown, the last with small sublateral tufts of white scales on medial segments. Fore wing with the basal area red-brown; sub-basal line brown defined on outer side by whitish, oblique, from costa to submedian fold; antemedial line dark brown defined on outer side by whitish, oblique, excurved below the cell, followed by a grey band tinged with red-brown, constricted at middle; medial line dark brown, incurved, the area beyond it chocolate-brown to the postmedial line, which is dark brown defined on outer side by grey, obliquely downcurved from costa to vein 6 where it is angled outwards, then obliquely incurved, some white points beyond it on costa; terminal area greyish suffused with red-brown; an oblique black-brown shade diffused on inner side from apex to vein 6 near the postmedial line, its outer edge incurved at vein 7 and excurved and defined by whitish above vein 6; an indistinct

dentate brown subterminal line produced to short white streaks on the veins, from vein 6 to inner margin; a fine waved brown terminal line with minute black points before it in the interspaces, and a fine pale line at base of cilia. Hind wing dark grey-brown; a faint oblique grey shade from middle of costa to above inner margin towards tornus, and a whitish line from vein 3 to termen near tornus; a fine brown terminal line and pale line at base of cilia; the underside grey suffused with brown, the termen tinged with blue-grey except towards apex, two indistinct waved dark postmedial lines, and a faint waved whitish subterminal line.

Hab. ASSAM, Shillong (*Rawlings*), 2 ♂, Silhet (*Stainsforth*), 2 ♂, 1 ♀; BENGAL, Ganjam, 1 ♂; BOMBAY, 1 ♂; MADRAS, Malabar, 1 ♂, Nilgiris (*Hampson*), 1 ♀; CEYLON (*Jameson*), 1 ♂, Kanthalai (*Yerbury*), 1 ♀; ANDAMANS, 1 ♂, 1 ♀; SELANGOR, Kuala Lumpur (*Robinson*), 1 ♀; BORNEO, Sarawak (*Wallace*), 1 ♀; FORMOSA, Takow (*Holson*), 1 ♂; JAVA (*Horsfield*), 1 ♂, 1 ♀; BR. N. GUINEA, Ekeikei (*Pratt*), 1 ♀, Mt. Kebea (*Pratt*), 2 ♂. *Exp.* 46–60 millim.

7725. *Parallelia interpena*. (Plate CCXX. fig. 15.)

Ophiusa interpena, Guen. Noct. iii. p. 269 (1852).

Head and thorax chocolate-brown with a greyish gloss; antennæ with the shaft whitish in front towards base; patagia with a faint pale line towards tips; pectus, legs, and abdomen greyish brown. Fore wing with the basal area chocolate-brown with a purple-grey gloss, the inner part of medial area and the terminal area purple-grey, the outer part of medial area deep chocolate-brown; a small tuft of white-tipped scales at base; subbasal line slight, whitish, oblique, from costa to submedian fold; antemedial line rather oblique, straight, brown defined on outer side by whitish; medial line strongly incurved, defining the dark area; postmedial line brown defined on outer side by white, more prominently from costa to vein 6 where it is obliquely downcurved, angled outwards at vein 6, then obliquely incurved to inner margin at the medial line, some whitish points beyond it on costa; an oblique black-brown shade diffused on inner side from apex to vein 6, where it is bent inwards to the angle of postmedial line; a faint dentate subterminal line produced to white points on the veins, from vein 6 to inner margin; a slight dark terminal line with minute dark points at the interspaces. Hind wing dark brown, the termen tinged with purple-grey at middle; a faint greyish medial shade and subterminal shade from vein 4 to tornus; a fine dark terminal line; cilia whitish at tips towards apex; the underside with traces of pale postmedial and subterminal lines.

Hab. JAVA (*Horsfield*), 1 ♀; BR. N. GUINEA, Dinawa (*Pratt*), 1 ♂, Ekeikei (*Pratt*), 1 ♂, Babooni (*Pratt*), 1 ♂, Mt. Kebea (*Pratt*), 2 ♀. *Exp.* 50–56 millim.

***7726. *Parallelia albocincta*. (Plate CCXX. fig. 16.)**

Ophisma albocincta, Wlk. xxxiii. p. 958 (1865); Swinh. Cat. Het. Mus. Oxon. ii. p. 138, fig.

♂. Head, thorax, and abdomen reddish brown, the pectus, legs, and ventral surface of abdomen darker brown with some whitish on pectus and base of abdomen, which has small sublateral white spots on medial segments. Fore wing with the basal area reddish brown with a faint oblique dark subbasal line from costa to submedian fold and some dark suffusion before the erect straight black-brown antemedial line; a white medial band expanding towards costa and inner margin where it is suffused with red-brown; the outer part of medial area deep chocolate-brown, its inner edge incurved; postmedial line whitish and oblique from costa to below vein 6 where it is angled outwards, then incurved to inner margin at the medial band; postmedial area pale reddish brown with oblique conical black-brown apical spot and dentate spot below it above vein 6; the terminal area white, its inner edge forming the subterminal line, which is angled inwards at discal fold to near the postmedial line, then dentate; a dark brown line just before termen with black points at the interspaces. Hind wing fuscous brown; the termen white from below apex to tornus towards which it expands; a brown line just before termen; cilia white with a fine brown line at base; the underside with two curved dark medial lines and a subterminal shade, the terminal area white to apex with a series of black points before termen.

Hab. CELEBES, Makian (*Wallace*), type † ♂ in Mus Oxon. *Exp.* 58 millim.

7727. *Parallelia expediens*. (Plate CCXX. fig. 17.)

Ophisma expediens, Wlk. xiv. 1424 (1858).

♀. Head and thorax reddish brown; abdomen dark brown; pectus, legs, and ventral surface of abdomen brown mixed with grey, the tarsi ringed with whitish. Fore wing chocolate-brown; antemedial line brown defined on outer side by white, oblique, straight, followed by an oblique white band suffused with purple-brown on its inner part and somewhat dilated at costa and inner margin, a black point on it in middle of cell; the outer part of medial area deep chocolate brown; postmedial line brown defined on outer side by white, obliquely downcurved from costa to below vein 6 where it is angled outwards, then incurved to inner margin at the medial band, some oblique white striæ beyond it from costa; the terminal area paler brown tinged with purple-grey shading to whitish at termen; an obliquely curved chocolate-brown shade diffused on inner side from apex to the postmedial line at vein 6, defined below by a white streak; traces of an obliquely incurved brown subterminal line with dentate dark spots on it at veins 4, 3, 2;

a fine dark terminal line with black points before it at the interspaces. Hind wing dark brown, the termen and cilia white between veins 6 and 2, with minute dark points before termen and a fine terminal line towards vein 2 below which there is a black-brown lunule on termen defined on inner side by white. Underside of fore wing brown, the costal area irrorated with violaceous white, an obliquely curved dark subterminal shade arising from apex, the termen violaceous white irrorated with brown except at tornus; hind wing brown irrorated with purple-grey, a faint dark postmedial line and dark subterminal shade, termen as above.

Hab. BRAZIL, Amazons, Pará (*Bates*), 1 ♀ type, Rio Janeiro in Coll. Druce. *Exp.* 72 millim.

7728. *Parallelia purpurata*.

Dysgonia purpurata, Kaye, Trans. Ent. Soc. 1901, p. 126, pl. v. f. 15.

♂. Head and tegulæ pale red-brown, the thorax darker red-brown; pectus, legs, and abdomen dark brown slightly irrorated with grey. Fore wing with the basal area dark red-brown defined by the faint oblique dark antemedial line slightly defined on outer side by purple-grey; the inner part of medial area pale red-brown tinged with purple-grey, broad at costa, very narrow at vein 1 and broadening somewhat to inner margin, its outer edge incurved; a black point in middle of cell; outer part of medial area dark red-brown; postmedial line whitish and oblique from costa to vein 6 where it is very acutely angled outwards and met by an obliquely curved dark streak diffused on inner side from apex, the line then fine, red-brown slightly defined on inner side by purple-grey and strongly incurved, some rufous suffusion beyond it defined by a faint dentate line of ochreous scales; some pale points on postmedial part of costa; the terminal area pale purple-grey except at apex, with a subterminal series of ochreous and dark points on the veins and a series of dark points defined by ochreous just before termen; a fine dark terminal line and fine ochreous line at base of cilia. Hind wing dark brown, the termen narrowly purple-grey except towards apex and tornus; a fine dark terminal line and a whitish line at base of cilia, which are purple-grey except at apex and tornus. Underside red-brown irrorated with purple-grey except the cell and inner area of fore wing.

Hab. TRINIDAD (*Kaye*), 1 ♂ type; S.E. PERU, St. Domingo (*Ockenden*), in Coll. Druce. *Exp.* 70 millim.

7729. *Parallelia axiniphora*, n. sp. (Plate CCXX. fig. 18.)

♂. Head and thorax pale rufous; pectus, legs, and abdomen grey-brown. Fore wing purplish grey thickly irrorated with red-brown; subbasal line brown defined on outer side by whitish,

oblique, from costa to submedian fold; antemedial line brown defined on outer side by whitish, oblique and slightly incurved; medial line obliquely incurved, the area beyond it deep chocolate-brown to the postmedial line, which is brown defined on outer side by whitish, obliquely downcurved from costa to vein 6 where it is angled outwards, then oblique to inner margin at the medial line, some white points beyond it on costa; an oblique chocolate-brown bar from apex to vein 6 above which it is excurved, then bent inwards to near the postmedial line; an indistinct oblique pale dentate subterminal line from vein 6 to inner margin, produced to slight white streaks on the veins and with slight dark marks before it; a series of blackish points before termen; a fine brown terminal line and whitish line at base of cilia. Hind wing grey-brown; an indistinct oblique whitish medial line from discal fold to above inner margin; a whitish bar from vein 3 to tornus; some grey on middle of termen; a series of slight dark points just before termen, a fine terminal brown line and whitish line at base of cilia, which are brownish white except at apex; the underside whitish suffused with red-brown, an indistinct dark postmedial line and subterminal shade with whitish lunules on its outer edge towards tornus.

Hab. SINGAPORE, 1 ♂ type. *Exp.* 60 millim.

7730. *Parallelia copidiphora*, n. sp. (Plate CCXX. fig. 19.)

Head and thorax pale red-brown mixed with grey, the tegulae slightly edged with grey, the patagia with oblique grey line near tips, the metathorax with grey line; pectus, legs, and abdomen grey-brown, the last with slight lateral tufts of white scales. Fore wing pale purplish grey slightly irrorated with blackish, the basal area suffused with red-brown especially on costal area before the antemedial line; subbasal line brown defined on outer side by whitish, oblique, from costa to submedian fold; antemedial line red-brown defined on each side by whitish, obliquely incurved; an incurved white medial band suffused with red-brown beyond the antemedial line; the outer part of medial area deep chocolate-brown; postmedial line dark brown, oblique and defined on outer side by white to vein 6 where it is angled outwards, then slightly defined by grey and incurved to inner margin near the medial band, some minute whitish spots beyond it on costa; an oblique wedge-shaped deep chocolate-brown mark from apex to vein 6, where it ends in a point near the angle of postmedial line; the postmedial area below vein 6 red-brown with an indistinct subterminal series of chocolate-brown marks on the veins; the terminal area pale purplish grey with white streaks on the veins; a series of black points before the fine terminal brown line; a whitish line at base of cilia. Hind wing grey-brown; a faint oblique whitish line from below middle of costa to near tornus and

a curved whitish subterminal line from vein 3 to tornus; the termen grey irrorated with brown at middle, with some dark points before the slight brown terminal line; a whitish line at base of cilia, which are grey except at apex; the underside grey-brown slightly irrorated with whitish, an indistinct waved dark postmedial line except on inner area.

Hab. BR. N. GUINEA, Dinawa (*Pratt*), 1 ♂ type, Mt. Kebea (*Pratt*), 1 ♀. *Exp.* 58 millim.

7731. *Parallelia leucogramma*, n. sp. (Plate CCXX. fig. 20.)

♀. Head and thorax pale reddish brown; pectus, legs, and abdomen grey-brown, the tarsi ringed with whitish. Fore wing pale dull reddish brown slightly irrorated with whitish; a waved whitish subbasal line from costa to submedian fold; antemedial line white, oblique to just above inner margin where it is joined by the narrow erect white medial band; postmedial line strong, white, obliquely downcurved from costa to vein 6 where it is joined by an oblique white streak from termen below apex, then very oblique to inner margin near the medial band; a whitish subterminal line just beyond the postmedial line, arising at vein 5 and waved to submedian fold, then bent outwards to tornus; a series of slight dark points just before termen; a white line at base of cilia. Hind wing greyish brown; faint traces of a whitish line from middle of costa to inner margin near tornus; a white bar from submedian fold to tornus; cilia with a white line at base and whitish tips; the underside fuscous brown irrorated with white, two indistinct rather diffused postmedial dark lines and a dentate subterminal shade, the area beyond it whiter with a series of black points before termen.

Hab. DUTCH N. GUINEA, Wataikwa R. (*Wollaston*), 1 ♀ type. *Exp.* 40 millim.

7732. *Parallelia hercodes*. (Plate CCXX. fig. 21.)

Thyas hercodes, Meyr. Trans. Ent. Soc. 1902, p. 29.

Thyas crinnopasta, Turner, P. Linn. Soc. N. S. W. xxxiv. p. 346 (1909).

♀. Head and thorax dark brown mixed with grey, the vertex of head and base of tegulæ slightly tinged with rufous; pectus and legs grey irrorated with fuscous, the tarsi ringed with white; abdomen grey suffused with brown. Fore wing bluish grey irrorated with cupreous brown; subbasal line dark brown, straight, from costa to submedian fold; antemedial line waved, erect, with a brown band on its inner side; a sinuous medial line, angled outwards on median nervure, with cupreous brown suffusion beyond it to the postmedial line, which is black-brown, sinuous, oblique and slightly defined by white on outer side from costa to below

vein 4, then incurved, some white points beyond it on costa; subterminal line slight, whitish, defined on inner side by cupreous brown suffusion, below vein 3 extending to the postmedial line, slightly excurved below vein 7 and at middle and with black spot on it below vein 2; the terminal area with cupreous brown patches at apex and middle; a waved black terminal line; cilia grey mixed with cupreous brown. Hind wing dark brown with a cupreous tinge, blackish towards termen; an oblique bluish white line from lower angle of cell to inner margin; a waved black subterminal line from vein 4 to tornus with white suffusion beyond it; a waved black terminal line; cilia white with brown patch at middle and chequered with brown at apex and towards tornus; the underside grey irrorated and suffused with red-brown except on inner area, a slight discoidal lunule and rather diffused curved postmedial and subterminal lines.

Hab. QUEENSLAND, Townsville, type † ♀ *crinnopasta* in Coll. Turner, Daringa; W. AUSTRALIA, Sherlock R. (*Clements*), 1 ♀. *Exp.* 28-32 millim.

7733. *Parallelia fulvotænia*.

Ophiusa fulvotænia, Guen. Noct. iii. p. 272 (1852); Moore, Lep. Ceyl. iii. p. 177, pl. 171. fig. 1; Hmps. Moths Ind. ii. p. 504.

Head, thorax, and abdomen deep red-brown; antennæ with the shaft white in front towards base; palpi, pectus, legs, and ventral surface of abdomen grey mixed with brown. Fore wing deep red-brown, the terminal area grey suffused with red-brown narrowing to a point at apex; a broad rather oblique whitish medial band tinged with red-brown, its inner edge straight and white, its outer edge incurved; postmedial line slight, pale, obliquely downcurved from costa to vein 6 where it is angled outwards, then oblique and slightly incurved to inner margin at the medial band, two faint whitish points beyond it on costa; the terminal area slightly paler than the postmedial area below the oblique shade from apex; a series of blackish points before termen. Hind wing blackish brown; an orange-yellow band from middle of costa to above tornus towards which it narrows, its outer edge excurved at middle; an oblique whitish subterminal bar from below vein 3 to submedian fold; the termen grey tinged with red-brown and irrorated with dark brown from below apex to near tornus; a series of slight blackish points just before termen; cilia grey tinged with red-brown. Underside whitish tinged with rufous and irrorated with dark brown; fore wing with fuscous patch below middle of cell with some yellowish beyond it, a slight discoidal spot, two slightly waved postmedial lines with a patch of fuscous suffusion beyond them below middle, and a waved subterminal shade; hind wing with black discoidal point, medial line slightly

angled at vein 6, minutely waved postmedial line, and pale waved subterminal line defined on each side by dark suffusion.

Hab. ? NATAL, 1 ♂; JAPAN, Tsu-shima I. (*Holst*), 2 ♂; FORMOSA (*Hobson*), 1 ♀; CENTR. CHINA, Chekiang, Snowy Valley (*Pryer*), 1 ♀; ASSAM, Silhet, 2 ♂, Dibrugrah (*Ward*), 2 ♀; CEYLON (*Templeton*), 1 ♂, 1 ♀; BURMA, Moulmein (*Clerk*), 1 ♂, Rangoon (*Bingham*), 1 ♀, Bhámo (*Fed*), 1 ♀; PERAK, Tapan (*Ridley*), 1 ♀; SINGAPORE (*Ridley*), 3 ♂, 8 ♀; SUMATRA (*Sir Stamford Raffles*), 1 ♂; BORNEO, Sandakan (*Pryer*), 1 ♂, 1 ♀; JAVA, 2 ♂, 1 ♀. *Exp.* 70-76 millim.

7734. *Parallelia analis*. (Plate CCXXI. fig. 1.)

Ophiusa analis, Guen. Noct. iii. p. 271 (1852); Hmps. Moths Ind. ii. p. 501.

Head, thorax, and abdomen red brown, the pectus and ventral surface of abdomen with some whitish mixed. Fore wing red-brown with a cupreous tinge; traces of a brown subbasal line from costa to submedian fold; an oblique Y-shaped white medial band enclosing a wedge-shaped patch of the ground-colour from costa to submedian fold; postmedial line strong, oblique and white from costa to discal fold, then indistinct and dark, oblique from vein 3 to inner margin at the medial band, two white points beyond it on costa and a slight subterminal whitish striga from costa; the termen slightly irrorated with white except towards apex and tornus; cilia white mixed with red-brown. Hind wing reddish brown with a cupreous tinge; a narrow oblique white medial band; a small white subterminal spot followed by a black spot on termen at submedian fold; the termen slightly irrorated with white at middle; cilia white mixed with red-brown; the underside irrorated with white especially on basal area and termen, slightly waved dark medial and postmedial lines, a faint lunulate white subterminal line, and a terminal series of black points.

Ab. 1. Paler; fore wing with the medial band broader towards inner margin.—Kangra.

Hab. HONGKONG (*Champion*), 1 ♀; PUNJAB (*James*), 1 ♀, Simla (*Harford*), 1 ♀, Kangra (*Hocking*), 2 ♂; ASSAM (*Badgley*), 1 ♀; MADRAS, Nilgiris (*Hampson*), 2 ♂, 2 ♀, Madura (*Campbell*), 1 ♀; CEYLON; BURMA, Moulmein (*Clerk*), 1 ♂; JAVA (*Horsfield*), 1 ♂, 1 ♀ type. *Exp.* 44-50 millim.

7735. *Parallelia conficiens*.

Ophiusa conficiens, Wlk. xiv. 1432 (1858); Butl. Ill. Het. B.M. vi. p. 45, pl. 112. f. 5; Hmps. Moths Ind. ii. p. 501.

Head, thorax, and abdomen black-brown; palpi in front, pectus, legs, and ventral surface of abdomen ochreous grey mixed with brown, the tarsi ringed with whitish. Fore wing black-brown; an oblique white rather narrow medial band, ochreous at costal edge

and with a few brown scales through middle, especially towards inner margin; postmedial line fine and white, oblique and slightly sinuous from costa to below vein 6 near termen, then incurved, excurved and waved to near termen from below vein 5 to below 2, then again incurved; a narrow creamy white terminal band; a slight reddish brown terminal line with black points just before it in the interspaces; cilia white, tinged with red-brown at tips. Hind wing dark fuscous brown, the inner area darker; an oblique white band from middle of costa to tornus, rather diffused on outer side; some diffused white scales obliquely from vein 3 to termen near tornus; a dark terminal line with creamy white before it except towards apex and tornus; cilia creamy white, brown at apex and towards tornus. Underside grey-brown; fore wing with the costal and terminal areas irrorated with whitish, the inner area whitish, a whitish band from end of cell to inner margin, a dark waved postmedial line incurved towards inner margin and with some ochreous white on its outer side at costa, the termen white irrorated with brown and with a series of black points; hind wing with slight discoidal lunule, rather diffused medial and postmedial lines, faint pale waved subterminal line defined on each side by brown, and terminal series of slight dark lunules.

Hab. PUNJAB (*Horne*), 1 ♂, Almorah (*Boys*), 1 ♂, 1 ♀ type, Simla (*Harford*), 1 ♂, 1 ♀, Manpuri, 1 ♀; BOMBAY, 1 ♂, 1 ♀. *Exp.* 54-56 millim.

7736. *Parallelia senex*. (Plate CCXXI. fig. 2.)

Ophiusa senex, Wlk. xv. 1832 (1858); Scott, Austral. Lep. ii. p. 26. pl. 18. *Ophiusa acutissima*, Beth.-Baker, Nov. Zool. xiii. p. 257 (1906).

Head, thorax, and abdomen grey-brown, the head and tegulae with a faint rufous tinge; genital tufts of male whitish. Fore wing with the basal area dark grey-brown, rather darker towards the antemedial line; a slight curved brown subbasal line from costa to submedian fold; antemedial line blackish defined on outer side by white, oblique, sinuous, more strongly excurved just below the cell; a broad white medial band irrorated with brown, its outer edge excurved at lower angle of cell, a slight brown discoidal spot on it; the outer part of medial area dark cupreous brown to the postmedial line, which is black-brown defined on outer side by white, oblique from costa to vein 6 where it is angled outwards, then incurved, excurved between veins 4, 3, then oblique and sinuous to inner margin at the medial band, two white points beyond it on costa; the postmedial area white suffused with cupreous brown; the terminal area white irrorated with brown and with slight white streaks on the veins; an oblique conical black-brown mark defined by white from apex with a dentate black-brown spot below it above vein 6; a dentate whitish subterminal line from vein 6 to inner margin; a series of black points before the fine dark terminal line; a white line at base of cilia. Hind wing grey-brown; a narrow

oblique white medial band from costa to inner margin; a blackish subterminal shade with some white beyond it towards tornus; terminal area whitish suffused with brown except towards apex; a fine waved brown terminal line; cilia white tinged with brown; the underside grey suffused with brown, a dark discoidal point, two postmedial lines and an indistinct waved subterminal shade.

Ab. 1. Fore wing with the outer part of medial area darker.

Hab. BR. N. GUINEA, Port Moresby, 1 ♂; QUEENSLAND, Townsville (*Dodd*), 1 ♀; N. AUSTRALIA (*Elsey*), 2 ♂ type, Port Darwin (*Buckland*), 3 ♂, 2 ♀. *Exp.* 46-50 millim. Type † *acutissima* in Coll. Bethune-Baker.

7737. *Parallelia staposa*.

Noctua achatina, Cram. Pap. Exot. iii. p. 145, pl. 273. f. E (1782), nee Sulzer.

Noctua stuposa, Fabr. Ent. Syst. iii. 2. p. 42 (1794); Moore, Lep. Ceyl. iii. p. 176, pl. 171. f. 7; Hmps. Moths Ind. ii. p. 500.

Ophiura festinata, Wlk. xiv. 1432 (1858).

Head and thorax pale reddish brown; pectus, legs, and abdomen paler and greyer. Fore wing with the basal area reddish brown, darker towards the antemedial line, which is blackish, excurved below the cell; a broad whitish medial band tinged with red-brown and with traces of a slight brown discoidal lunule on it; the outer part of medial area dark brown, very narrow below vein 3; postmedial line black-brown defined on outer side by whitish, obliquely incurved from costa to below vein 6 where it is angled outwards, then incurved, excurved between veins 4, 3, to inner margin at the medial band, two white points beyond it on costa; the postmedial area whitish suffused with pale brown, the terminal area whitish irrorated with brown; the veins slightly streaked with white; an oblique conical chocolate-brown mark defined by white from apex with a dentate spot below it above vein 6; traces of a dentate whitish subterminal line from vein 6 to inner margin; a series of black points before the fine brown terminal line and a fine white line at base of cilia. Hind wing dull reddish brown; a narrow oblique white band from middle of costa to inner margin towards tornus and a faint whitish line from vein 3 to termen near tornus; the terminal area greyish except towards apex; a series of black points before the fine brown terminal line and a fine whitish line at base of cilia; the underside grey suffused and irrorated with reddish brown, two curved slightly waved postmedial lines and an indistinct waved whitish subterminal line defined on each side by brown.

Hab. JAPAN, Tsuruga (*Leech*), 1 ♀, Yokohama (*Jonas, Maries*), 2 ♂, 1 ♀; LOO-CHOO Is. (*Pryer*), 1 ♂; FORMOSA, 1 ♂; CENTR. CHINA, Shanghai (*Fortune*), 1 ♂, Kiukiang (*Pratt*), 1 ♂; W. CHINA, Chang-yang (*Pratt*), 1 ♀, Washan (*Pratt*), 1 ♀, Chia-kou-ho (*Pratt*), 1 ♂, Ta-chien-lu (*Pratt*), 1 ♂; PUNJAB, Allahabad, 1 ♂; BENGAL, Calcutta, 1 ♀, Ganjam, 1 ♀; MADRAS, 1 ♀, Malabar, 1 ♀, Nilgiris (*Hampson*), 1 ♂; CEYLON (*Templeton*), 3 ♂,

2 ♀ type *festinata*, Periyakulam (*Yerbury*), 1 ♀, Trincomali (*Yerbury*), 1 ♀; PHILIPPINES, Taytai (*Betton*), 1 ♀; JAVA (*Horsfield*), 1 ♀. *Exp.* 46-56 millim.

7738. *Parallelia constricta*. (Plate CCXXI. fig. 3.)

Ophiusa constricta, Butl. Cist. Ent. i. p. 293 (1874).

Grammodes divaricata, Lucas, P. Linn. Soc. N. S. W. (2) vii. p. 259 (1892).

♀. Head and thorax pale reddish brown, the antennæ with the shaft white in front towards base; pectus, legs, and abdomen pale grey-brown, the last with the hair at base reddish brown. Fore wing with the basal area pale red-brown to the straight oblique dark brown antemedial line; a white medial band slightly irrorated with brown at middle and expanding to costa and inner margin; the outer part of medial area cupreous brown, its inner edge evenly curved; postmedial line dark brown, rather oblique and defined on outer side by white to vein 6, then inwardly oblique and very slightly sinuous to inner margin at the medial band; the postmedial area pale reddish brown, the terminal area white irrorated with brown and with slight white streaks on the veins; a conical black-brown mark defined on inner side by white from apex with a small dentate spot below it below vein 7 and a small spot below vein 6; an indistinct dentate white subterminal line from vein 6 to inner margin; a fine waved brown terminal line with blackish points at the interspaces. Hind wing with the basal area grey-brown, the terminal area black-brown; an oblique white band from middle of costa to tornus towards which it narrows and a slight oblique white line from vein 3 to termen near tornus; the termen white except at apex; a fine brown terminal line with blackish points before it in the interspaces; cilia white; the underside white irrorated with brown, a small black discoidal spot, two postmedial lines waved towards costa, and a waved subterminal shade.

The N. Guinea specimen has the hind tibia spined to base, the Queensland specimen with two spines between the mid and terminal spurs.

Hab. BR. N. GUINEA, Port Moresby, 1 ♀; QUEENSLAND, Rockhampton, 1 ♀ type. *Exp.* 50-56 millim.

***7739. *Parallelia dicoela*.** (Plate CCXXI. fig. 4.)

Thyas dicoela, Turner, P. Linn. Soc. N. S. W. xxxiv. p. 346 (1909).

♂. Head and thorax red-brown; pectus, legs, and abdomen grey-brown. Fore wing red-brown, the postmedial area rufous, the terminal area grey except at apex; a white medial band tinged with rufous towards costa and inner margin, expanding at costa and inner margin and constricted at middle; postmedial line obliquely downcurved from costa to vein 6 where it is acutely angled

outwards, then oblique to inner margin at the medial band, very slightly incurved below vein 3 and bent outwards to inner margin; two conjoined obliquely placed black-brown spots from apex to vein 6 beyond the angle of postmedial line and followed by a slight dentate whitish subterminal line defined on inner side by minute dark marks; a fine crenulate brown terminal line with dark points in the interspaces. Hind wing fuscous brown with diffused oblique bluish white medial band from below vein 6 to above tornus; some grey on termen from below apex to above tornus; a fine waved brown terminal line; cilia grey; the underside red-brown mixed with some grey, the inner area and the terminal area except towards apex greyer, traces of two postmedial lines and a diffused subterminal band.

Hab. QUEENSLAND, Cairns, type † ♂ in Coll. Turner. *Exp.* 50 millim.

7740. *Parallelia crameri*.

Noctua achatina, Cram. Pap. Exot. iii. p. 171, pl. 288. f. A (1782); Fabr. Ent. Syst. 3. 2. p. 16 (1794), nec Sulzer, 1776.

Dysgonia crameri, Moore, Lep. Ceyl. iii. p. 177, pl. 171. f. 2 (1885); Hmps. Moths Ind. ii. p. 501.

Dysgonia discalis, Moore, Lep. Ceyl. iii. p. 177, pl. 171. f. 8 (1885).

Head, thorax, and abdomen dark brown; antennæ with the shaft white in front towards base; palpi, pectus, legs, and ventral surface of abdomen grey mixed with brown. Fore wing dark brown, the terminal area grey suffused and irrorated with reddish brown except at apex; the costal edge whitish towards base; a broad oblique creamy white medial band irrorated with red-brown through the middle, expanding towards costa and inner margin, its inner edge straight, its outer edge incurved; postmedial line strong, oblique and white from costa to vein 6, then black slightly defined on outer side by grey, incurved and slightly sinuous to inner margin near the medial band, two white points beyond it on costa; an oblique black-brown shade diffused on inner side from apex to vein 6 where it is bent inwards to the angle of the postmedial line; the veins of terminal area slightly streaked with white; a series of minute blackish points before the slight dark terminal line; a fine white line at base of cilia. Hind wing dark fuscous brown; an oblique white band from middle of costa to above tornus towards which it narrows; the terminal area grey irrorated with brown, narrowing to a point below apex; a white subterminal bar followed by a black spot at submedian fold; a slight brown terminal line; cilia white tinged with red-brown; the underside grey-white irrorated with brown, indistinct slightly waved brown medial and postmedial lines except on inner area, a faint pale waved subterminal line defined on each side by brown suffusion, and a series of black points before termen.

Ab. 1. *discalis*. Fore wing with the area between the medial and postmedial lines suffused with violaceous white.

Hab. HONGKONG (*J. J. Walker*), 1 ♂; W. CHINA, Chang-yang

(Pratt), 1 ♀, Kwei-chow, 1 ♀; AFGHANISTAN, Dugshai (*Swinhoe*), 1 ♂; PUNJAB, Dharmasāla (*Hocking*), 1 ♀; ASSAM, Silhet, 1 ♂, Shillong (*Rawlings*), 1 ♀; BOMBAY, 1 ♀, Ratnagiri (*Jayaker*), 1 ♂, Canara (*Ward*), 1 ♀; MADRAS, Malabar, 1 ♀, Nilgiris (*Hampson*), 1 ♂, 2 ♀, Coimbatore (*Walhouse*), 1 ♀; CEYLON (*Templeton*), 2 ♂, 2 ♀ type *discais*, Maturatta (*Mackwood*), 1 ♀, Trincomali (*Yerbury*), 1 ♀; BURMA, Moulmein (*Clerk*), 1 ♂; ANDAMANS; SIAM, Bangkok (*Flower*), 1 ♂. *Exp.* 54-66 millim.

Larva. Ochreous thickly mottled with small pale red-brown and dark brown spots; fulvous yellow dorsal and stigmatal stripes and a yellowish subdorsal stripe, the dorsal and subdorsal stripes with some small red-brown spots on them; a black-brown dorsal bar followed by three small yellow spots between the 4th and 5th somites; 10th somite with a pair of dorsal reddish prominences with a small black spot in front of them; ventral surface pale yellow with black-brown patches between the claspers; head brown with yellow markings and Y-shaped patch on frons.

7741. *Parallelia vitiensis*. (Plate CCXXI. fig. 5.)

Ophiura vitiensis, Butl. Trans. Ent. Soc. 1886, p. 414.

Head and thorax pale red-brown, the patagia with faint oblique brown and whitish line towards tips; pectus, legs, and abdomen greyish brown. Fore wing grey suffused with pale reddish brown; subbasal line brown defined on outer side by white, oblique, from costa to submedian fold; antemedial line dark brown, oblique, straight, a white band irrorated with red-brown beyond it to the medial line which is incurved; the outer part of medial area chocolate-brown to the postmedial line, which is dark brown defined on outer side by white, obliquely downcurved to below vein 6 where it is angled outwards, then incurved, excurved at vein 2, and ending on inner margin near the medial line, some white points beyond it on costa; an oblique black-brown shade diffused on inner side and defined on outer side by white from apex to vein 6 near the angle of postmedial line; traces of a dentate whitish subterminal line from vein 6 to inner margin with small black spots on it at veins 4, 3; a fine brown terminal line with black points before it in the interspaces; a fine white line at base of cilia. Hind wing grey-brown; an oblique whitish medial shade from discal fold to inner margin and an oblique white line from vein 3 to termen near tornus; the termen grey at middle with a slight waved brown terminal line and white line at base of cilia; the underside grey suffused with red-brown, a crenulate brown postmedial line, indistinct waved subterminal shade defined on outer side by whitish, and series of black points before termen.

Hab. TROBRIAND Is., Kiriwini (*Meek*), 2 ♀; FIJI, 1 ♂ type, Loma-Loma (*Mathew*), 1 ♂. *Exp.* 48-54 millim.

7742. *Parallelia rogenhoferi*.

Grammodes rogenhoferi, Bohatsch, Verh. zool.-bot. Ges. Wien, xxix. p. 407 (1879); John. Hor. Soc. Ent. Ross. xxxix. f. 628, pl. xviii. f. 7 c., xxi. f. 22, & xxiii. f. 45; Staud. Cat. Lep. pal. p. 245.

Grammodes mirabilis, Rom. Mém. ii. p. 78, pl. iv. f. 5 (1835); Hmps. Moths Ind. ii. p. 501.

Ophiura triangulata, Swinh. P. Z. S. 1889, p. 414, pl. 43. f. 5.

♀. Head, thorax, and abdomen grey-brown; antennæ with the shaft white in front towards base. Fore wing grey-brown with a slight cupreous gloss; a white erect medial band somewhat dilated at costa and inner margin and irrorated at middle with brown scales, especially on costal area; a strong white postmedial line oblique from costa to subterminal line below vein 4, then inwardly oblique to inner margin near the medial band, some white points beyond it on costa, and white streaks on the veins except towards costa; subterminal line white, oblique and sinuous from apex to discal fold, then waved and incurved below vein 3; the termen narrowly white except towards apex and tornus; a fine waved dark terminal line with points at the interspaces; cilia brownish white. Hind wing grey-brown with a cupreous gloss; a rather narrow oblique white band from middle of costa to above tornus; a slight dentate white line from vein 3 to termen near tornus; the termen narrowly white except towards tornus; a fine sinuous dark terminal line; cilia brownish white; the underside white irrorated with brown, a brown discoidal point, rather diffused medial and postmedial lines, waved white subterminal line with brown suffusion before it, and a fine waved dark terminal line with points at the interspaces.

Hab. ARMENIA; SYRIA; SIND, Karáchi (*Swinhoe*), 1 ♀ type *triangulata*. *Exp.* 46 millim.

B. (*Macaldenia*.) Hind tarsi of male with the 1st joint not fringed with hair above; thorax without tufts of hair and scales below base of wings.

a. Hind wing without white lunules on the postmedial line on inner area.

a¹. Hind wing with oblique white medial band.

a². Fore wing with the postmedial line angled outwards at vein 6.

a³. Fore wing with the postmedial line erect from vein 5 to 3, then oblique *latifascia*.

b³. Fore wing with the postmedial line incurved below vein 3 *arctotænia*.

c³. Fore wing with the postmedial line incurved below vein 6.

a⁴. Fore wing with the postmedial line strongly incurved below vein 6 and excurved at middle *properata*.

b⁴. Fore wing with the postmedial line much less strongly incurved below vein 6 and excurved at middle.

a⁵. Fore wing with the postmedial line strongly incurved below vein 3 *properans*.

- b*⁵. Fore wing with the postmedial line less strongly incurved below vein 3 *algira*.
*b*². Fore wing with the postmedial line excurved below costa but not angled outwards at vein 6 *hicanora*.
*b*¹. Hind wing without white medial band.
*a*². Fore wing with the postmedial line incurved below vein 6.
*a*³. Fore wing with the postmedial line evenly incurved below vein 6.
*a*⁴. Fore wing with the postmedial line strongly angled outwards at vein 6.
*a*⁵. Fore wing with the antemedial line oblique, straight *erectata*.
*b*⁵. Fore wing with the antemedial line excurved *consobrina*.
*b*⁴. Fore wing with the postmedial line slightly angled outwards at vein 6 *similis*.
*b*³. Fore wing with the postmedial line incurved below vein 3.
*a*⁴. Fore wing with black subapical spot *macrorrhyncha*.
*b*⁴. Fore wing without black subapical spot *porphyrescens*.
*c*³. Fore wing with the postmedial line excurved from vein 2 to inner margin *monogona*.
*d*³. Fore wing with the postmedial line excurved at submedian fold.
*a*⁴. Fore wing with the outer edge of the medial band diffused *smithi*.
*b*⁴. Fore wing with the outer edge of the medial band well defined *derogans*.
*c*³. Fore wing with the postmedial line excurved at vein 5 and submedian fold *mesonephele*.
*f*³. Fore wing with the postmedial line excurved at middle but not at submedian fold, very strongly incurved below vein 6 *goniophora*.
*g*³. Fore wing with the postmedial line excurved at middle and submedian fold.
*a*⁴. Fore wing with the postmedial line very strongly incurved below vein 6 *triplocyma*.
*b*⁴. Fore wing with the postmedial line moderately incurved below vein 6.
*a*⁵. Fore wing with the antemedial line evenly incurved *angularis*.
*b*⁵. Fore wing with the antemedial line excurved below the cell *mandschuriana*.
*h*³. Fore wing with the postmedial line excurved at middle and above inner margin and incurved between those points.
*a*⁴. Fore wing with the postmedial line slightly excurved at middle *abnegans*.
*b*⁴. Fore wing with the postmedial line strongly excurved at middle.
*a*⁵. Fore wing with the antemedial line slightly angled inwards at median nervure, then straight and oblique *prorasigna*.
*b*⁵. Fore wing with the antemedial line not angled inwards at median nervure, but incurved at vein 1 *simillima*.
*b*². Fore wing with the postmedial line oblique and waved below vein 6 *multilineata*.

- b. Hind wing with white lunules on the postmedial line on inner area.
- a1. Fore wing with the postmedial line arising from costa towards apex and closely approximated to the subterminal line *palumbiodes*.
- b1. Fore wing with the postmedial line arising from costa just beyond end of cell and not approximated to the subterminal line *palumba*.

7743. *Parallelia latifascia*. (Plate CCXXI. fig. 6.)

Dysgonia latifascia, Warr. P. Z. S. 1888, p. 316; Hmps. Moths Ind. ii. p. 500.

Head and thorax reddish brown; antennæ with the shaft white in front towards base; pectus, legs, and abdomen greyish brown. Fore wing with the basal area cupreous brown to the evenly curved dark antemedial line; a white medial band irrorated with brown especially towards costa, expanding towards costa and inner margin, and with a slight brown discoidal lunule on it; the outer part of medial area broadly cupreous brown, its inner edge evenly curved; postmedial line dark brown defined on outer side by white, oblique from costa to vein 6, below vein 4 inwardly oblique to inner margin near the medial line, two white points beyond it on costa; postmedial area pale cupreous brown, the termen white irrorated with brown except at tornus; a conical black-brown mark from apex conjoined to a spot above vein 6; a series of blackish points before the fine brown terminal line; cilia white tinged with brown except at base. Hind wing dark greyish brown; a narrow oblique white band from middle of costa to inner margin towards tornus; the termen white irrorated with brown except towards apex; a fine brown terminal line with black points at the interspaces; cilia white, tinged with brown at apex and towards tornus; the underside grey suffused with brown, a slight discoidal point, two dark slightly waved postmedial lines, and a waved whitish subterminal line with dark suffusion before it.

Some specimens have one or two spines between the medial and terminal spurs of hind tibiæ.

Hab. PUNJAB, Kulu, Sultanpur (*G. Young*), 4 ♀, Simla (*Swinhoe, Reed*), 3 ♀, Kasauli, 1 ♀, Campbellpur (*Yerbury*), 1 ♂ type, Dharmasāla (*Hocking*), 2 ♂, 2 ♀, Deyra Dhun, 1 ♀; SIKHIM, 1 ♀. *Exp.* 46–52 millim.

7744. *Parallelia arctotænia*. (Plate CCXXI. fig. 7.)

Ophiura arctotænia, Guen. Noct. iii. p. 272 (1852); Hmps. Moths Ind. ii. p. 501.

Head, thorax, and abdomen dark greyish brown; antennæ with the shaft white in front towards base; pectus, legs, and ventral surface of abdomen rather greyer. Fore wing dark greyish brown with a slight cupreous tinge; a rather narrow oblique white medial band somewhat expanding towards costa and with some brown irroration at middle on costal area; postmedial line strong, oblique

and white from costa to vein 6, then blackish and oblique, incurved below vein 4 to inner margin at the medial band; an obliquely curved blackish mark from apex defined by white on outer side, excurved and forming a spot above vein 6; the termen narrowly white except towards tornus; a series of minute black points before the fine brown terminal line; cilia whitish with a pale brown line at middle. Hind wing greyish brown with a slight cupreous gloss; an oblique white band from middle of costa to above tornus; a blackish subterminal shade with rather dentate outer edge between discal and submedian folds; the termen narrowly white except towards apex and tornus with a fine dark terminal line; cilia white, tinged with brown towards apex and tornus; the underside irrorated with whitish, a black discoidal point, indistinct curved postmedial line, subterminal shade, and series of black points before termen.

Hab. JAPAN, Satsuma (*Leech*), 1 ♂, Nikko (*Maries*), 2 ♂, Yokohama (*Jonas, Pryer*), 2 ♂, Kiushiu, 1 ♀; Loo-choo Is. (*Pryer*), 1 ♀; COREA, Gensan (*Ito*), 1 ♀; FORMOSA, 1 ♂; CHINA SEA, Namoa I. (*J. J. Walker*), 1 ♂; CENTR. CHINA, Kiukiang (*Pratt*), 1 ♂, Ship-y-shán, 1 ♀; W. CHINA, Chin-fu-san (*Maw*), 1 ♂, Chia-ting-fu (*Pratt*), 1 ♂, Chang-yang (*Pratt*), 1 ♀, Omei-shán, 1 ♂, Kwei-chow, 1 ♀, Ta-chien-lu (*Pratt*), 1 ♀; PUNJAB, Dharmśála (*Hocking*), 3 ♀, Wuzeerabad (*Hearsey*), 2 ♀; ASSAM, Silhet, 3 ♂; BOMBAY, Mhow (*Swinhoe*), 1 ♀; CEYLON; UP. BURMA, Kinyua (*Bingham*), 1 ♀; FIJI (*Mathew*), 1 ♀. *Exp.* 46-62 millim.

7745. *Parallelia properata*.

Ophiusa properata, Wlk. xiv. 1433 (1858); Butl. Ill. Het. B.M. vi. p. 46, pl. 112. f. 6; Hmps. Moths Ind. ii. p. 500.

Head, thorax, and abdomen dark greyish brown; antennæ with the shaft white in front towards base. Fore wing with the basal area dark greyish brown to the curved black antemedial line; a medial white band tinged with red-brown and expanding at costa and inner margin; medial line incurved, the area beyond it dark greyish brown to the postmedial line, which is blackish defined on outer side by white, oblique from costa to vein 6 where it is angled outwards, then incurved, excurved between veins 4, 3 and at vein 1, and ending on inner margin near the medial line, some white points beyond it on costa and slight white streaks on the veins; an oblique triangular black-brown mark from apex and small dentate mark below vein 7; a fine dark terminal line and pale line at base of cilia. Hind wing dark greyish brown; an oblique white medial shade from costa to inner margin and slight whitish line from vein 2 to tornus; a fine dark terminal line and pale line at base of cilia, which are white from below apex to vein 5; the underside grey suffused with brown, a blackish discoidal point, indistinct dark medial and postmedial lines, and faint waved subterminal shade.

Hab. PUNJAB (*James*), 2 ♀ type, Manpuri, 1 ♀; SIKHIM, 1 ♂; MADRAS, Nilgiris (*Hampson*), 2 ♂, Palnis (*Campbell*), 1 ♂. *Exp.* 46-48 millim.

7746. *Parallelia properans*. (Plate CCXXI. fig. 8.)*Ophiusa properans*, Wlk. xiv. 1426 (1858).

Head, thorax, and abdomen grey-brown. Fore wing with the basal area grey-brown; a faint dark subbasal line from costa to submedian fold; antemedial line black-brown, excurved; a white medial band irrorated with brown, expanding at costa and inner margin, a black discoidal point on it; medial line dark, incurved, the area beyond it dark brown to the postmedial line, which is black defined on outer side by white, obliquely downcurved to below vein 6 where it is angled outwards, then incurved, excurved between veins 4, 3 and at vein 1 and ending on inner margin at the medial line, some whitish points beyond it on costa; terminal area grey suffused and irrorated with brown; an oblique black-brown bar from apex to vein 6, diffused on inner side and excurved above vein 6; a faint pale dentate subterminal line from vein 6 to inner margin; a series of black points before termen. Hind wing grey-brown; a slight blackish discoidal spot; an oblique whitish medial shade from costa to inner margin and a slight whitish line from vein 3 to tornus; the termen grey except towards apex and tornus with a series of black points just before termen; cilia white, tinged with brown except below apex; the underside grey suffused with brown, a small black discoidal spot, curved dark postmedial line, and indistinct subterminal shade.

Hab. TRANSVAAL, Piet Retief (*Mrs. Mercer*), 1 ♂; NATAL, Durban (*Leigh, Ross*), 2 ♂; CAPE COLONY (*Sir A. Smith*), 1 ♂, 1 ♀ type, Grahamstown (*Tuck*), 1 ♂. *Exp.* 44–52 millim.

Larva. Ochreous thickly mottled with pale brown and with more prominent pairs of small dark dorsal spots on abdominal somites; dorsal, subdorsal, lateral, and sublateral lines pale orange-yellow; a stigmal stripe defined by fine white lines; 11th somite with slight hump; head white mottled with small brown spots.

7747. *Parallelia algira*.

Noctua algira, Linn. Syst. Nat. ed. xii. p. 836 (1767); Godt. Lép. Fr. v. p. 111, pl. 53. f. 3; Mill. Icones, ii. pl. 92. ff. 9, 10; Hmps. Moths Ind. ii. p. 500; John, Hor. Soc. Ent. Ross. xxxix. p. 627, pl. xviii. f. 7 b, xxi. f. 20, & xxiii. f. 42; Staud. Cat. Lep. pal. p. 245.

Noctua achatina, Sulz. Abg. Ges. Ins. p. 160, pl. 22. f. 4 (1776).

Noctua triangularis, Hübn. Eur. Schm. Noct. f. 323 (1802).

Ophiusa torrida, Guen. Noct. iii. p. 269 (1852).

Ophiusa albivitta, Guen. Noct. iii. p. 271 (1852).

Ophiusa festina, Wlk. xiv. 1425 (1858).

Ophiusa olympia, Swinh. P. Z. S. 1885, p. 466.

Grammodes algoioides, Schultz, Soc. Ent. xxii. p. 185 (1908).

Head and thorax pale bronze-brown; pectus, legs, and abdomen pale grey-brown. Fore wing with the basal area pale bronze-brown, rather darker towards the antemedial line, which is dark brown defined on outer side by white, excurved below the cell; a medial

white band irrorated with red-brown, expanding towards costa and inner margin; medial line dark-brown, incurved; the outer part of medial area bronze-brown to the postmedial line, which is dark brown defined on outer side by white, obliquely downcurved from costa to below vein 6 where it is angled outwards, then incurved, excurved between veins 4, 3 and slightly sinuous towards inner margin near the medial line, two white points beyond it on costa; the terminal area pale grey tinged with red-brown especially towards the postmedial line, the veins slightly streaked with white; an oblique triangular black-brown mark from apex defined by

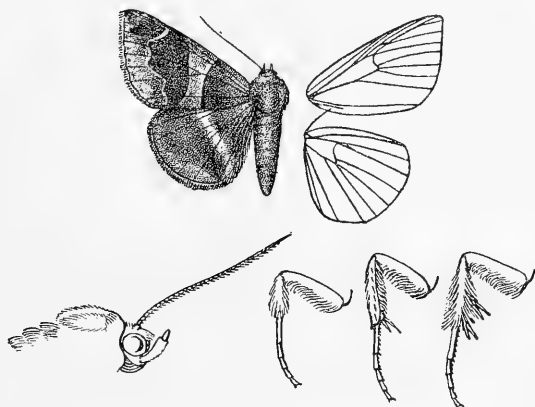


Fig. 133.—*Parallelia algira*, ♂. $\frac{1}{2}$.

white and connected with a dentate spot above vein 6; faint traces of a pale dentate subterminal line from vein 6 to inner margin; a series of minute black points before the fine dark terminal line; cilia with fine white lines at base and near tips. Hind wing pale reddish brown; a narrow oblique whitish band from middle of costa to inner margin near tornus; the termen pale grey at middle with slight dark points before the fine terminal brown line; cilia white tinged with brown at middle and towards tornus; the underside grey irrorated with reddish brown, a slight discoidal point, indistinct slightly waved medial and postmedial lines, and a subterminal shade.

Ab. 1. *torrida*. Darker; fore wing sometimes without the slight white streaks on veins of terminal area.

Ab. 2. *albivitta*. Fore wing with the medial band whiter.

Ab. 3. *olympia*. Fore wing with the medial band narrower.

Hab. FRANCE, Paris; SWITZERLAND; AUSTRIA, S. Tirol; SPAIN; ITALY, Capri (*C. S. Browne*); DALMATIA, Zeller, Frey, & Leech Colls.; GREECE, Merlin Coll.; RUSSIA, Crimea; ARMENIA, 1 ♀, Zeller Coll.; ASIA MINOR; CYPRUS (*Miss Bate*), 1 ♀; SYRIA, Beirut, 1 ♂, 2 ♀,

Frey & Leech Colls., Lebanon (*Pratt*), 1 ♂; SIERRA LEONE (*Foxcroft*), 2 ♂; GOLD COAST, Bibianaha (*Spurrell*), 1 ♂; S. NIGERIA, Lagos (*Boag*), 1 ♂, 1 ♀, Onitsha, 1 ♀, Ilesha (*Humfrey*), 2 ♂; N. NIGERIA, Baro (*Macfie*), 1 ♀, Zungeru (*Macfie*), 2 ♀; FERNANDO Po (*Fraser*), 1 ♀; CONGO (*Curror*), 1 ♂ type *festina*, Kambove (*Neave*), 1 ♀; SUDAN, White Nile, Gabt el Meghahid (*Dunn*), 1 ♀; ABYSSINIA, Errer Gota (*Drake-Brockman*), 1 ♀; BR. E. AFRICA, Pemba I. (*Burt*), 1 ♂, Kilwe (*Crawshaw*), 1 ♂; GERM. E. AFRICA, Usagara (*Neave*), 1 ♂; BR. C. AFRICA, Zomba (*Johnston*), 1 ♂, 1 ♀, Fort Johnston (*Neave*), 1 ♀, Chiromo (*Neave*), 1 ♂, Lr. Shiré Valley (*Neave*), 1 ♀; LORENÇO MARQUES, Delagoa Bay (*Distant*), 1 ♀; MASHONALAND, Salisbury (*Marshall*), 1 ♀; RHODESIA, Bulawayo (*Eyles*), 1 ♀; TRANSVAAL, Barberton (*Rendall*), 1 ♀, Pretoria (*Janse, Distant*), 2 ♀; NATAL, Durban (*Gueinzius, Gooch, Burrows, Meade-Waldo*), 2 ♂, 3 ♀; MADAGASCAR, Glorioso I. (*Meade-Waldo*), 3 ♂, 3 ♀; MAURITIUS, 1 ♀; RODRIGUEZ (*Gulliver, Manders*), 1 ♂, 1 ♀; ADEN (*Yerbury*), 1 ♀; PERSIA; W. TURKESSTAN, Turcomania, Ferghana; PUNJAB, Dharmasála (*Hocking*), 1 ♀, Campbellpur (*Yerbury*), 1 ♀, Allahabad, 1 ♀, Jubbulpur (*F. Butler*), 2 ♂, 1 ♀, Manpuri, 1 ♂; BOMBAY (*Swinhoe*), 2 ♀ type *olympia*, Kutch, 2 ♀, Poona (*Swinhoe*), 1 ♀; MADRAS, Malabar (*Watkins*), 1 ♀, Nilgiris (*Hampson*), 1 ♂, 1 ♀; CEYLON, 1 ♂, 2 ♀. *Exp.* 42-58 millim.

Larva. Kirby, Butt. & Moths Eur. p. 281; Hffn. Raup. p. 147, pl. 36. f. 25. Yellowish grey with slender blackish lines; a white lateral line; 11th somite slightly humped with oblique subbasal black bars. Food-plants: Bramble, Sloe, etc. 7-8.

7748. *Parallelia hicanora*. (Plate CCXXI. fig. 9.)

Thyas hicanora, Turner, Trans. Roy. Soc. S. Austr. xxvii. p. 9 (1903).
Ophiusa vulgaris, Beth.-Baker, Nov. Zool. xiii. p. 258 (1906).

Head and thorax red-brown; abdomen grey-brown, the genital tufts ochreous. Fore wing pale reddish brown more or less tinged with grey; a fine slightly sinuous antemedial line; a slight discoidal lunule; some black suffusion before the postmedial line which is excurred from costa to vein 6 and with a narrow band of pale rufous on its outer edge expanding on costal area into a triangular patch extending to apex; the rest of terminal area grey irrorated with black and suffused with dark brown at termen; a series of black points before termen; cilia dark brown. Hind wing black, greyish at base; an oblique whitish medial band not reaching costa or inner margin; the termen and cilia white except at apex and tornus, with some brown suffusion at middle; the underside brownish grey thickly irrorated with brown, a discoidal point, minutely dentate postmedial line, diffused subterminal shade, and series of points before termen.

Hab. BR. N. GUINEA, Ekeikei (*Pratt*), 4 ♂, 3 ♀; QUEENSLAND, Townsville (*Dodd*), type † in Coll. Turner. *Exp.* 46-56 millim. Type † *vulgaris* in Coll. Bethune-Baker.

7749. *Parallelia erectata*. (Plate CCXXI. fig. 10.)*Ophiusa erectata*, Hmps. Ann. S. Afr. Mus. ii. p. 341 (1902).

Head and thorax grey suffused with red-brown; tegulae slightly tipped with grey, the patagia with oblique grey line towards tips; palpi, pectus, legs, and abdomen grey-brown, the tarsi ringed with whitish. Fore wing grey suffused with pale red-brown and with slight dark irroration, the basal area and outer part of medial area darker red-brown; subbasal line blackish defined on outer side by whitish, angled outwards below costa, then sinuous and ending at vein 1; antemedial line blackish defined on outer side by white, slightly excurved below costa, then slightly outwardly oblique; a dark discoidal lunule; medial line dark, oblique to vein 6, angled inwards at discal fold, incurved and waved below vein 4; postmedial line blackish defined on outer side by white, oblique and bisinuate from costa to just below vein 6 where it is acutely angled outwards, then strongly incurved and very slightly sinuous; subterminal line whitish with some red-brown suffusion before it on costal area and three white points on costa, angled outwards at vein 7, then excurved and with black spot before it above vein 6 met by an oblique dark streak from apex, below vein 6 the line represented by slight white streaks on the veins; a fine crenulate brown terminal line angled inwards to black points in the interspaces. Hind wing grey tinged with cupreous brown; a faint dark postmedial line; a whitish subterminal band except towards costa defined on each side by dark suffusion which extends on apical area to termen; a dark terminal line; cilia whitish tinged with red-brown; the underside grey irrorated with red-brown, a slight discoidal spot, dark postmedial line crenulate except on inner area, and faint pale subterminal line.

Ab. 1. Fore wing with the outer half of medial area paler and with the black marks on costal area towards apex reduced.

Hab. BR. E. AFRICA, Muthambi (*Crawshay*), 1 ♂ type, M'gana (*Betton*), 2 ♀; N.E. RHODESIA, Luangwa Valley (*Neave*), 3 ♂, 1 ♀; TRANSVAAL, Lydenburg Distr., 1 ♀. *Exp.* 36-40 millim.

7750. *Parallelia consobrina*. (Plate CCXXI. fig. 11.)

Ophiusa consobrina, Guen. Noct. iii. p. 268 (1852); Smith, Cat. Noct. N. Am. p. 319.

Ophiusa redditura, Wlk. xiv. 1435 (1858).

♀. Head and thorax reddish brown tinged with purple-grey; pectus, legs, and abdomen greyish brown. Fore wing red-brown tinged with purple-grey, the area beyond the antemedial line and the terminal area purple-grey irrorated with brown; antemedial line brown slightly defined on outer side by white, curved; traces of a medial line excurved beyond the cell, then incurved; postmedial line brown defined on outer side by white, obliquely downcurved

from costa to vein 6 where it is angled outwards, then incurved; an oblique black-brown shade diffused on inner side from apex to vein 6 above which it is excurved, then bent inwards to the angle of postmedial line; traces of a dentate subterminal line from vein 6 to inner margin; a fine dark terminal line. Hind wing red-brown with a cupreous gloss; the cilia greyish; the underside with indistinct curved dark postmedial line.

Hab. U.S.A., Southern States; *HAB.* 16N., 2 ♀ type *redditura*.
Exp. 42 millim.

7751. *Parallelia similis*. (Plate CCXXI. fig. 12.)

Ophiusa similis, Guen. Noct. iii. p. 267 (1852); Smith, Cat. Noct. N. Am. p. 319.

Ophiusa apicalis, Guen. Noct. iii. p. 267 (1852).

Grammodes concolor, Grote, Can. Ent. xxv. p. 155 (1893).

Head and thorax deep red-brown; antennæ with the shaft whitish in front towards base; abdomen paler red-brown. Fore wing deep red-brown slightly irrorated with dark brown; traces of a red-brown antemedial line from costa to submedian fold, excurved below costa; traces of an incurved medial line; an indistinct postmedial brown striga from costa and traces of a postmedial line slightly angled outwards at vein 6, then oblique; traces of a pale dentate subterminal line; an oblique black-brown streak from apex ending in a triangular spot on vein 6; the terminal area tinged with greyish; a series of slight blackish points before termen. Hind wing uniform deep red-brown.

Ab. 1. *apicalis*. Fore wing with the area between the indistinct medial and postmedial lines deep chocolate-brown.

Hab. U.S.A., S. States, Georgia, 5 ♂, 1 ♀. *Exp.* 46-48 millim.

7752. *Parallelia macrorhyncha*, n. sp. (Plate CCXXI. fig. 13.)

♂. Head and thorax grey suffused with reddish brown; palpi and frons darker brown; pectus, legs, and abdomen grey-brown. Fore wing grey tinged with brown and irrorated with blackish, the outer part of medial area red-brown; subbasal line blackish, excurved below costa and ending at vein 1; antemedial line dark brown, slightly excurved below costa, then oblique, a black-brown bar before it in cell and triangular patch in submedian interspace; a dark discoidal bar; medial line dark, touching the upper end of discoidal bar, then excurved beyond the cell and bent inwards below it, excurved at vein 1; postmedial line blackish, obliquely downcurved to just below vein 6 where it is strongly angled outwards and defined on outer side by white, joining the subterminal line at vein 6, below vein 6 slightly defined on outer side by grey, oblique and slightly waved to vein 3, then incurved and slightly sinuous, the costa beyond it blackish with some white points on it; subterminal line whitish, oblique and defined on

inner side by black-brown towards costa, excurved at vein 7 and with a black spot before it, then waved; an oblique dark brown bar from apex and slight dark shade at middle of terminal area; a fine waved dark terminal line and whitish line at base of cilia. Hind wing grey suffused with brown; a whitish subterminal line from discal fold to tornus; a fine dark terminal line and whitish line at base of cilia; the underside grey tinged and irrorated with brown, a slight dark discoidal striga and faint sinuous postmedial and subterminal lines.

Hab. N.E. RHODESIA, Kolungwisi Valley (*Neave*), 1 ♂ type. *Exp.* 40 millim.

7753. *Parallelia porphyrescens*.

Ophiusa porphyrescens, Hmps. P. Z. S. 1910, p. 421, pl. xxxvii. f. 14.

Head and thorax brown mixed with purplish grey; abdomen grey suffused with fuscous brown. Fore wing brown suffused with purplish grey and with dark patches on costal area before the postmedial and subterminal lines; antemedial line brown slightly defined on each side by whitish, angled outwards below costa, then oblique; a blackish discoidal line defined on inner side by whitish; an indistinct dark medial line excurved beyond the cell, then sinuous; postmedial line dark defined on outer side by whitish, angled outwards at vein 6, oblique to vein 2, then erect, two white points beyond it on costa; subterminal line indistinct, pale faintly defined on outer side by fuscous, angled outwards at vein 7, then minutely waved and bent outwards to tornus; a series of black points just before tornus; a fine dark terminal line and pale line at base of cilia. Hind wing fuscous brown, the termen tinged with grey; a fine dark terminal line with black points at the interspaces and pale line at base of cilia; the underside whitish suffused and irrorated with brown except on inner area, traces of a dark postmedial line excurved below costa, then oblique, and of a double waved subterminal line.

Hab. N.E. RHODESIA, Chambezi Valley (*Neave*), 1 ♂ type. *Exp.* 44 millim.

*7754. *Parallelia monogona*. (Plate CCXXI. fig. 14.)

Ophiusa monogona, Lower, Tr. R. Soc. S. Austr. xxvii. p. 38 (1903).

♂. Head and thorax red-brown; antennæ pale; fore legs dark brown, pectus, mid and hind legs and abdomen grey-brown. Fore wing pale red-brown deepening towards the postmedial line; a pale slightly incurved and sinuous antemedial line; a white point in middle of cell; a slight whitish discoidal point; an indistinct medial line somewhat angled outwards below costa, then incurved and slightly excurved towards inner margin; the postmedial line whitish, oblique from costa to vein 6, incurved to vein 2, then excurved; the terminal area whitish brown rather darker towards

costa and termen and with very faint traces of a pale subterminal line angled outwards below costa. Hind wing greyish fuscous with a faint whitish medial line and a more distinct whitish subterminal line from vein 4 incurved to termen at vein 1; cilia white towards apex and tornus; the underside whitish brown with indistinct slightly sinuous medial line.

Hab. QUEENSLAND, Duaringa, type † ♂ in Coll. Lower. *Exp.* 50 millim.

7755. *Parallelia smithi*. (Plate CCXXI. fig. 15.)

Ophiusa smithii, Guen. Noct. iii. p. 266, pl. 22. f. 4 (1852); Smith, Cat. Noct. N. Am. p. 319.

♀. Head, thorax, and abdomen brown slightly tinged with grey. Fore wing purplish grey suffused with red-brown, the inner half of medial area and the terminal area purplish grey irrorated with brown; subbasal line represented by a slight brown striga across the cell; antemedial line dark brown, slightly excurved from below costa to inner margin; traces of a medial line excurved beyond the cell, then incurved; outer half of medial area chocolate-brown, its inner edge diffused, bounded by the whitish postmedial line, which is obliquely downcurved from costa to below vein 6 where it is angled outwards, then incurved, angled outwards below vein 2 and oblique to inner margin, some whitish points beyond it on costa and slight white streaks on the veins except towards costa; an oblique black bar from apex to vein 6 above which it is excurved; an indistinct dentate whitish subterminal line from vein 6 to inner margin; a slight crenulate brown terminal line with minute black points at the interspaces. Hind wing reddish brown, the termen purplish grey from below apex to tornus towards which it widens; a slight brown terminal line; the underside grey irrorated and suffused with brown, a slight discoidal lunule and postmedial line crenulate and oblique to discal fold, then inwardly oblique.

Hab. U.S.A., S. States, Georgia, 1 ♀. *Exp.* 44 millim.

7756. *Parallelia derogans*. (Plate CCXXI. fig. 16.)

Ophiusa chiliensis, Guen. Noct. iii. p. 270 (1852), nom. inept.
Ophiusa derogans, Wlk. xv. 1832 (1858).

Head and thorax purplish grey mixed with red-brown; pectus, legs, and abdomen grey-brown. Fore wing purplish grey irrorated with red-brown; subbasal line brown, excurved below costa and ending at vein 1; some cupreous brown suffusion before the antemedial line, which is dark brown, oblique to vein 1 and slightly bent inwards to inner margin; the outer part of medial area dark cupreous brown, its inner edge oblique and slightly incurved; postmedial line dark defined on outer side by whitish, obliquely downcurved from costa to below vein 6 where it is angled outwards,

then obliquely incurved and excurved just below vein 2, two minute pale points beyond it on costa; the postmedial area suffused with pale red-brown; an oblique conical black-brown patch from apex defined on inner side by white, and with a blackish spot below it above vein 6; an indistinct dentate whitish subterminal line from vein 6 to inner margin; a fine crenulate brown terminal line angled inwards to points in the interspaces; cilia tinged with fuscous at middle. Hind wing grey-brown with a slight cupreous gloss; a slight lunulate dark terminal line with some grey before it at vein 2 and at tornus; the underside grey suffused with brown, a slight discoidal spot, very indistinct minutely waved postmedial line, and waved subterminal shade.

Hab. GOLD COAST, Kumasi (*Whiteside*), 1 ♀; UGANDA (*Doggett*), 1 ♀; GERM. E. AFRICA, Itumba (*Wood*), 1 ♂; BR. C. AFRICA, Zomba (*Johnston*), 2 ♂, M'langi Boma (*Neave*), 2 ♂, 2 ♀; NATAL, Durban (*Gooch*), 2 ♀; CAPE COLONY (*Drege*), 1 ♂, 1 ♀ type; MADAGASCAR. *Exp.* 36-38 millim. Type † ♀ *chiliensis* in Mus. Paris labelled "Port Natal" and agreeing exactly with Guenée's description.

7757. *Parallelia mesonephele*.

Ophiusa mesonephele, Hmps. P. Z. S. 1910, p. 422, pl. xxxvii. f. 23.

♀. Head, thorax, and abdomen brown tinged with purplish grey; palpi white at extreme tips; tarsi ringed with whitish. Fore wing brown suffused with purple-grey; antemedial line black, rather diffused on inner side, straight, erect; postmedial line with band of black suffusion before it, excurved at discal and submedian folds, some pale points beyond it on costa; two obliquely placed dentate subapical black spots with traces of a waved line from them to inner margin; a fine waved dark terminal line. Hind wing grey-brown with fine waved dark terminal line; the underside grey-brown with slight dark irroration and traces of a curved postmedial line.

Hab. N.E. RHODESIA, Chambezi Valley (*Neave*), 1 ♀ type, Mansya R. (*Neave*), Mpika (*Neave*), 1 ♀. *Exp.* 36 millim.

7758. *Parallelia goniophora*.

Ophiusa goniophora, Hmps. P. Z. S. 1910, p. 422, pl. xxxvii. f. 15.

♂. Head and thorax ochreous grey mixed with black; pectus ochreous white; tarsi fuscous with pale rings; abdomen dorsally fuscous, ventrally ochreous white. Fore wing grey-brown with a purplish tinge, the basal half irrorated with black, the area between the medial and postmedial lines suffused with black-brown becoming velvety black at the postmedial line; traces of a fuscous sinuous subbasal line from costa to vein 1; antemedial line indistinctly double, blackish, sinuous; medial line diffused,

fuscous, inwardly oblique; postmedial line very acutely angled outwards at vein 6, then strongly incurved and excurved between veins 3 and 2, its angle met by an oblique sinuous streak from apex, the enclosed costal area tinged with rufous and with some pale points on costa; a series of black points just before termen; cilia with a fine pale line at base. Hind wing fuscous brown; the underside greyish suffused and irrorated with fuscous, a black discoidal point and two indistinct postmedial lines excurved below costa.

Hab. Congo, Katanga, Kambove (*Neave*), 1 ♂ type. *Exp.* 52 millim.

7759. *Parallelia triplocyma*, n. sp. (Plate CCXXI. fig. 17.)

♂. Head and thorax grey-brown faintly tinged with reddish and mixed with some blackish; palpi towards tips, sides of frons, and antennæ blackish; pectus and legs grey-brown, the tibiæ and tarsi with blackish mixed; abdomen grey-brown suffused with fuscous, the ventral surface whitish. Fore wing with the basal half pale grey-brown tinged with reddish and irrorated with black, the terminal half suffused with fuscous; subbasal line brown, excurved below costa and ending at submedian fold, a slight dark mark beyond it on costa; antemedial line brown with some blackish before it at costa, slightly angled outwards below costa, then somewhat oblique and slightly sinuous; medial line black-brown, inwardly oblique; reniform narrow and constricted at middle, defined by blackish; postmedial line black slightly defined on outer side by whitish, very oblique and distinctly defined by white from costa to vein 6 where it is acutely angled outwards, then strongly incurved, excurved between veins 3 and 2 and at vein 1 and ending on inner margin near the medial line, a blackish patch beyond it on costal area with three white points on costa; an oblique blackish mark from apex to vein 6 above which it is excurved and defined by whitish on outer side, extending on inner side to the postmedial line; a faint pale reddish sinuous subterminal shade from vein 6 to inner margin; a series of minute black points with a larger spot at submedian fold before the slight black terminal line; a fine pale line at base of cilia. Hind wing grey-brown suffused with fuscous; an oblique whitish line from vein 2 to tornus; some greyish suffusion at middle of termen and a fine waved black terminal line; cilia with a fine pale line at base and a whitish patch below apex; the underside grey suffused and irrorated with brown, the terminal area suffused with fuscous, a small dark discoidal lunule, indistinct curved medial line, postmedial line excurved and slightly waved to discal fold, then oblique, and traces of a pale subterminal line.

Hab. BR. C. AFRICA, Chiromo (*Neave*), 1 ♂ type. *Exp.* 44 millim.

7760. *Parallelia angularis*.

Ophiusa angularis, Boisd. Faun. Ent. Mad., Lép. p. 103, pl. 13. f. 2 (1833).

Dysgonia camerunica, Holl. Psyche, vii. p. 85, pl. 3. f. 8. (1894).

Head and thorax red-brown, the tegulae slightly tipped with grey, the patagia with oblique grey line near tips; antennae with the shaft white in front towards base; palpi, pectus, legs, and abdomen grey-brown. Fore wing purplish grey tinged with rufous and with slight dark irroration; subbasal line dark brown, angled outwards below costa and ending at submedian fold; some black-brown suffusion before the curved black antemedial line; the outer part of medial area deep red-brown, its inner edge slightly curved outwards to inner margin, the slight dark discoidal lunule on it; postmedial line dark defined on outer side by grey-white, obliquely downcurved from costa to vein 6 where it is angled outwards, then incurved with a slight outward curve at vein 5, and strongly excurved below vein 2, some reddish brown suffusion beyond it on inner area; subterminal line pale with some deep red-brown before it on costal area and two white points on costa, angled outwards as a triangular black-brown spot above vein 6 and with a wedge-shaped black-brown spot beyond it below costa, the line indistinct and dentate from vein 6 to inner margin; a fine crenulate brown terminal line, angled inwards to slight points in the interspaces. Hind wing grey-brown with a slight cupreous gloss; a faint pale oblique line from vein 3 to tornus and a waved brown terminal line; the underside grey irrorated and suffused with brown, a dark discoidal point, postmedial line crenulate to vein 5, and waved whitish subterminal line.

Hab. N. NIGERIA, Zungeru (*Macfie*), 1 ♂; BR. E. AFRICA, Voi (*Betton*), 1 ♀; UGANDA, Wadelai (*Emin Pasha*), 1 ♂; BR. C. AFRICA, M'langi Boma (*Neave*), 4 ♀, Zomba (*Neave*), 1 ♀, Blantyre (*Neave*), 1 ♀; MASHONALAND, Salisbury (*Marshall*), 1 ♀; TRANSVAAL (*Cholmley*), 1 ♂, 1 ♀; NATAL, Durban (*Gooch, Meade-Waldo*), 3 ♂; MADAGASCAR (*Geale*), 1 ♀; MAURITIUS; SEYCHELLES, Mahé (*B. Fletcher*), 1 ♀. *Exp.* 36-44 millim.

7761. *Parallelia mandschuriana*. (Plate CCXXI. fig. 18.)

Grammodes mandschuriana, Stand. Rom. Mém. vi. p. 578 (1892); id. Cat. Lep. pal. p. 245.

♂. Head and thorax brown tinged with purplish grey; pectus, legs, and abdomen grey-brown. Fore wing brown suffused with purplish grey especially the inner part of medial area, the costal area beyond the postmedial line and the terminal area; subbasal line indistinct, brown, curved, from costa to submedian fold; antemedial line brown defined on inner side by dark brown suffusion and on outer slightly by whitish scales, excurved below the cell; the inner half of medial area purple-grey, the outer half dark

reddish brown, its inner edge curving outwards to inner margin at the postmedial line, which is brown, obliquely downcurved and defined on outer side slightly by whitish to vein 6 where it is angled outwards, then defined by grey, incurved and sinuous, some whitish points beyond it on costa; an oblique whitish streak defined on inner side by black-brown from apex to vein 6 above which it is excurved, then bent inwards to the angle of postmedial line; the veins of terminal area slightly streaked with white; an indistinct dentate grey subterminal line from vein 6 to inner margin incurved below vein 3; a crenulate brown terminal line with black points before it in the interspaces. Hind wing brown; an indistinct oblique greyish subterminal line from vein 3 to tornus; the termen tinged with grey at middle; a crenulate brown terminal line; cilia grey-white at tips towards apex; the underside brownish grey irrorated with brown, a dark discoidal point, crenulate postmedial line, subterminal shade, and series of points before termen.

Hab. E. SIBERIA, Ussuri; COREA, Gensan (*Leech*), 1 ♂. *Exp.* 44 millim.

7762. *Parallelia abnegans*. (Plate CCXXI. fig. 20.)

Ophiusa abnegans, Wlk. xv. 1831 (1858).

Head, thorax, and abdomen grey-brown with a reddish tinge; tegulæ with the terminal half darker brown, the tips whitish; patagia with an oblique dark line at middle edged with whitish behind, the tips and a line across metathorax whitish, the metathorax dark brown; frons whitish at sides, the basal joint of antennæ whitish in front; pectus and ventral surface of abdomen greyer, the latter with the crests blackish tipped with grey. Fore wing greyish suffused with pale red-brown and with slight dark irroration; a curved black subbasal striga from costa defined on outer side by whitish; antemedial line black defined on outer side by whitish and with blackish suffusion before it from costa to just above inner margin becoming deep black and widening below the cell, the line slightly excurved from costa to submedian fold and incurved at vein 1, a faint dark shade beyond it; a faint dark discoidal bar; medial line dark, oblique to vein 4 and slightly incurved at discal fold, incurved and waved below vein 4; postmedial line double, blackish with red-brown suffusion between it and the medial line, and blackish suffusion at middle, oblique and filled in with white from costa to vein 6, incurved and sinuous from vein 4 to submedian fold, then excurved, two whitish points beyond it on costa; subterminal line pale defined on inner side by black from costa to vein 6, above which the line is angled outwards with a wedge-shaped black mark before it and an oblique black mark beyond it from apex, below vein 6 the line is dentate and produced to slight white streaks on the veins, bent outwards to inner margin; a crenulate brown terminal line with a small black

spot before it at submedian fold; a pale line at base of cilia. Hind wing grey-brown with an oblique whitish line from vein 2 to tornus; cilia whitish tinged with brown, browner at middle; the underside grey suffused with brown, two faint minutely waved postmedial lines and traces of a pale waved subterminal line.

Hab. SIERRA LEONE (*Morgan*), 1 ♂ type; BR. E. AFRICA, Tanga (*Hollis*), 1 ♀. *Exp.* 38 millim.

7763. *Parallelia prorasigna*, n. sp. (Plate CCXXI. fig. 19.)

♀. Head and thorax grey tinged with red-brown; pectus, legs, and abdomen grey-brown. Fore wing grey-brown irrorated with blackish, the basal area and outer half of medial area darker; subbasal line blackish, sinuous, from costa to submedian fold; antemedial line black, oblique, slightly excurved below costa and angled inwards at median nervure; a sinuous dark medial line defining the inner side of the dark area, and a faint dark discoidal bar; postmedial line black defined on outer side by grey, oblique towards costa, produced to a point at vein 6, then excurved, incurved and slightly sinuous below vein 4, the costa beyond it blackish with white points on it; subterminal line whitish defined on inner side by fuscous brown, oblique towards costa, angled outwards below vein 7, where there is a dentate black spot on its inner side, then slightly waved, incurved below vein 3, and with a minute black spot on its inner side at submedian fold; an oblique black bar from apex; a fine waved dark terminal line with a small black spot at submedian fold, and a fine pale line at base of cilia. Hind wing grey suffused with brown; indistinct sinuous pale postmedial and subterminal lines from discal fold to inner margin, the former defined on inner side, the latter on each side by darker brown; a fine dark terminal line and whitish line at base of cilia; the underside grey irrorated with brown, a dark discoidal striga and slightly waved sinuous medial, postmedial, and subterminal lines.

Hab. UGANDA, Unyora, Kafu R. (*Neave*), 1 ♀ type. *Exp.* 36 millim.

7764. *Parallelia simillima*.

Ophiusa simillima, Guen. Noct. iii. p. 266 (1852); Moore, Lep. Ceyl. iii. p. 178, pl. 170. f. 8; Hmps. Moths Ind. ii. p. 500.

Head and thorax pale red-brown, the patagia with slight oblique whitish line at middle; pectus, legs, and abdomen greyish brown, the last with the crests blackish and grey at tips. Fore wing grey-brown with a faint reddish tinge and some dark irroration, the basal area rather darker brown with blackish suffusion before the antemedial line from cell to just above inner margin; subbasal line

brown slightly defined on outer side by whitish, angled outwards below costa and ending at submedian fold; antemedial line black, dilated at costa and with whitish suffusion before it towards costa, oblique, bent inwards to costa and incurved at vein 1; a slight dark discoidal spot; medial line dark, oblique to vein 5 and slightly angled outwards beyond upper angle of cell, incurved below vein 5 and excurved towards inner margin, the area beyond it suffused with brown except towards inner margin; postmedial line double, dark brown filled in with whitish, oblique to vein 6 where it is angled outwards, then incurved, excurved between veins 5 and 3 and at vein 1, the costal area beyond it suffused with brown with three whitish points on costa; subterminal line whitish, angled outwards at vein 7 below which there is a wedge-shaped black mark before it and an oblique black mark beyond it from apex; below vein 6 slightly defined on inner side by dark brown, dentate and produced to slight whitish streaks on the veins; a series of slight black points before the fine crenulate brown terminal line and a more prominent spot at submedian fold; a fine pale line at base of cilia. Hind wing grey-brown; an oblique whitish line from vein 3 to tornus; the termen tinged with grey except towards apex and tornus; a fine brown terminal line with a blackish striga at submedian fold; cilia with a whitish patch below apex; the underside whitish suffused with red-brown, a slight dark discoidal lunule, crenulate postmedial line except on inner area, and subterminal shade.

Hab. ASSAM, Silhet (*Stainsforth*), 1 ♀; MADRAS, Malabar, 1 ♀, Gooty (*Campbell*), 1 ♀, Palnis (*Campbell*), 1 ♀; CEYLON (*Templeton*), 1 ♂, Peradeniya (*Green*), 1 ♀; PHILIPPINES, Antipolo (*Betton*), 1 ♀; FORMOSA, Takow (*Hobson*), 1 ♀; JAVA (*Horsfield*), 2 ♂, 2 ♀. *Exp.* 38–44 millim.

Larva. Semper, Reis. Phil., Lep. ii. p. 558, pl. S. ff. 8, 9.

Brown with white shadings; 11th somite with a pair of dorsal prominences; 1st two pairs of prolegs absent.

Pupa. Brown with white efflorescence.

7765. *Parallelia multilineata*. (Plate CCXXI. fig. 21.)

Naxia multilineata, Holl. Psyche, vii. p. 83 (1894).

♀. Head, thorax, and abdomen brown mixed with grey; the palpi and head with a slight fulvous tinge. Fore wing purple-grey irrorated with brown; two obliquely curved and somewhat diffused red-brown subbasal lines from costa to submedian fold; a double sinuous brown antemedial line, the inner line rather diffused; a diffused brown discoidal bar; medial line brown, bent outwards beyond upper angle of cell, then oblique, sinuous and with another indistinct line beyond it; postmedial line dark brown, oblique to vein 6 where it is met by an oblique streak from apex, then double, oblique and minutely waved, some pale points beyond it on costa; subterminal line represented by an oblique pale striga from costa,

and below the apical streak by a double diffused brown line slightly excurved at middle; a crenulate dark terminal line with blackish points in the interspaces. Hind wing brown; a pale oblique line from vein 5 beyond lower angle of cell to inner margin towards tornus; a pale subterminal line from vein 3 to tornus; some purple-grey on termen from vein 5 to submedian fold; cilia whitish at tips; the underside grey irrorated and suffused with brown, two indistinct postmedial lines somewhat oblique to discal fold, an indistinct waved subterminal line, and a fine black terminal line with series of points before it.

Hab. SIERRA LEONE (*Clements*), 1 ♀; GABOON, Ogové R. *Exp.* 42 millim.

7766. *Parallelia palumbiodes*. (Plate CCXXII. fig. 1.)

Ophiusa palumbiodes, Hmpsn. Ann. S. Afr. Mus. ii. p. 341 (1902).

Head and thorax ochreous tinged with rufous and irrorated with black; antennæ with slight dark rings towards base; pectus grey; abdomen grey sparsely irrorated with black. Fore wing ochreous tinged with rufous and irrorated with black, the postmedial and terminal areas violaceous white; subbasal line black, curved, from costa to submedian fold; antemedial line black, waved; a faint dark discoidal spot; postmedial line blackish, waved, with black points at the veins and small spot at costa, slightly excurved below costa, then oblique, two white points beyond it on costa; an oblique brown subterminal line, erect below submedian fold; a series of black points before termen. Hind wing ochreous tinged with brown before termen, which is grey-white except at apex and tornus; an oblique black medial line; a whitish subterminal line defined on inner side by brown, between vein 3 and submedian fold forming three small white lunules with a yellow patch beyond them irrorated with deep rufous; a series of minute black points before termen; cilia whitish, tipped with brown towards tornus; the underside grey-white irrorated with black, a slight brown discoidal spot, an indistinct double waved blackish postmedial line oblique below vein 7, and traces of a double waved subterminal line.

Hab. W. AFRICA (*Dudgeon*), 1 ♀; GOLD COAST, Cape Coast Castle (*Higlett*), 1 ♂; S. NIGERIA, Lagos (*Boag*), 1 ♀; NATAL, Durban (*Gooch, Leigh, Clark*), 4 ♂, 1 ♀ type. *Exp.* 40-46 millim.

7767. *Parallelia palumba*.

Hulodes palumba, Guen. Noct. iii. p. 211 (1852); Moore, Lep. Ceyl. iii. p. 162, pl. 168. ff. 1 a, b; Hmpsn. Moths Ind. ii. p. 496.
Remigia colligens, Wlk. xxxiii. 1019 (1865).

Head and thorax very pale rufous; antennæ dark brown; pectus and legs pale grey, the latter irrorated with black, the spurs ringed with black; abdomen pale grey slightly irrorated with black

and dorsally tinged with rufous. Fore wing very pale rufous irrorated with a few black scales except on terminal area; a curved subbasal black striga from costa; antemedial line dark and sinuous from costa to discal fold, then with black points on the veins and inner margin; a slight dark discoidal spot; postmedial line represented by an oblique dark striga from costa, then by a series of black points on the veins, excurved to vein 5, then oblique, some minute white streaks beyond it on costa; an indistinct brown subterminal line, oblique and slightly waved; a series of slight blackish streaks just before termen. Hind wing greyish tinged with brown and irrorated with a few black scales except on terminal area which is greyer; a fine oblique blackish medial line; a slight waved subterminal line, excurved at middle, where there is some bright rufous before it with a series of five small white lunules defined by dark brown between veins 5 and 1 before the rufous; a series of black points and small spots on inner half before termen with an oblique mark below vein 2; a series of black striae on inner half of termen; cilia with a dark line through them, black between veins 3 and 1; the underside grey-white faintly tinged with rufous and irrorated with black, a slight blackish discoidal spot, diffused postmedial line, and waved whitish subterminal line angled outwards at vein 6.

Hab. ASSAM (*Baldgley*), 1 ♀, Silhet (*Stainsforth*), 1 ♂; BENGAL, 1 ♀; BOMBAY, Kanara (*Ward*), 1 ♂; CEYLON (*Lindesay*), 1 ♂, 2 ♀, Trincomali (*Yerbury*), 1 ♂; BURMA, Moulmein (*Clerke*), 1 ♀; SINGAPORE (*Ridley*), 2 ♂, 3 ♀; JAVA (*Horsfield*), 1 ♂, 2 ♀ type; HAB. IGN., 1 ♀ type *colligens*. *Exp.* 36-48 millim.

Larva. Brownish ochreous above, olive below; some dorsal and lateral black-speckled streaks; a sublateral whitish line with some pinkish spots above it; the 11th somite with pair of dorsal prominences; the 1st pair of claspers aborted.

SECT. II. (*Parallelia*). Mid tibiæ of male not dilated; hind tarsi with the 1st joint not fringed with hair above.

- | | |
|--|---------------------|
| A. Fore wing with the postmedial line excurved at middle and incurved at discal and submedian folds..... | <i>obscura</i> . |
| B. Fore wing with the postmedial line slightly incurved below vein 4. | |
| a. Fore wing with oblique black-brown mark from apex angled outwards above vein 6 | <i>dulcis</i> . |
| b. Fore wing with oblique streak from apex to vein 6 forming part of the subterminal line | <i>bistriaris</i> . |

7768. *Parallelia obscura*.

Ophiusa obscura, Brem. & Grey, Schmett. N. China, p. 19 (1853); Staud.

Cat. Lep. pal. pt. ii. p. 256.

Leucanitis hedemanni, Staud. Stett. Ent. Zeit. 1888, p. 267; id. Rom. Mém. vi. p. 578, pl. xi. f. 5; id. Cat. Lep. pal. p. 244.

Naxia coreana, Leech, P. Z. S. 1889, p. 560, pl. 52. f. 11; John, Hor. Soc. Ent. Ross. xxxix. p. 628, pl. xviii. f. 5 c.

Head, thorax, and abdomen dark grey-brown, the palpi, pectus,

and legs paler. Fore wing brown tinged with grey, the inner half of medial area, the costal area beyond the postmedial line and the terminal area greyer; subbasal line slight, brown, from costa to submedian fold; antemedial line dark, oblique from costa to just below vein 2, then inwardly oblique; medial line represented by the contrast between the grey and brown areas; postmedial line blackish, rather oblique and defined on outer side by white from costa to vein 6, then incurved at discal and submedian folds and excurved at middle and towards inner margin; an oblique black-brown mark from apex slightly defined by grey with a wedge-shaped mark below it above vein 6; a faint waved brown subterminal line from vein 6 to inner margin; a slight waved brown terminal line with minute points at the interspaces; cilia with a brown line through them, mixed with whitish towards tornus. Hind wing brown with a cupreous tinge; faint dark medial and subterminal shades; cilia whitish with a brown line through them, tinged with brown at middle.

Hab. E. SIBERIA, Amurland, 1 ♂, Ussuri, 1 ♀; N. CHINA, Manchuria; COREA, Gensan (*Leech*), 1 ♂, 3 ♀ type *coreana*, Douglas Inlet (*B. Fletcher*), 1 ♂. *Exp.* 30-36 millim.

7769. *Parallelia dulcis*.

Ophiusa dulcis, Butl. A. M. N. H. (5) i. p. 239 (1878); id. Ill. Het. B.M. ii. p. 42, pl. 34. f. 5.

Head and thorax grey-brown irrorated with grey; pectus, legs, and abdomen pale grey-brown. Fore wing pale grey, the basal half thickly irrorated with red-brown, the postmedial area suffused with red-brown and with the veins streaked with white, the terminal area pale grey except at apex; antemedial line brown defined on outer side by white, erect and slightly sinuous; medial line brown, incurved and slightly sinuous, the area beyond it chocolate-brown to the postmedial line which is whitish, incurved below vein 4; an oblique black streak from apex, diffused on inner side and expanding into a spot above vein 6; a crenulate dark terminal line with black points at the interspaces. Hind wing grey suffused with brown, the termen pale grey except at apex and tornus with a fine crenulate dark terminal line with black points at the interspaces; cilia pale grey; the underside pale grey suffused with red-brown except on inner area and termen, traces of diffused medial, postmedial, and subterminal lines except on inner area.

Some specimens have a single spine on the hind tibiae between the medial and terminal spurs.

Hab. JAPAN, Oiwaké (*Pryer*), 1 ♂, Fusan (*Leech*), 1 ♀, Tokio (*Maries*), 1 ♀, Yokohama (*Jonas, Pryer*), 4 ♂, 2 ♀ type; W. CHINA, Chang-yang (*Pratt*), 1 ♀. *Exp.* 30-36 millim.

7770. *Parallelia bistriaris*.

Parallelia bistriaris, Hübn. Zutr. exot. Schmett. i. 15. ff. 63, 64 (1827); Smith, Cat. Noct. N. Am. p. 360.
Poaphila amplissima, Wlk. xiv. 1473 (1858).

Head and thorax purplish grey-brown ; palpi with the 2nd joint white in front ; abdomen purplish grey tinged with brown. Fore wing red-brown thickly irrorated with purple-grey, the terminal area purple-grey irrorated with brown ; antemedial line red-brown defined on outer side by violaceous white, erect and almost straight ; postmedial line red-brown defined on outer side by violaceous white, incurved below vein 4, some minute white points beyond it on costa, the veins beyond it with white streaks ; subterminal line



Fig. 134.—*Parallelia bistriaris*, ♂. ½.

violaceous white, oblique from apex to vein 6, then bent inwards, excurved and waved at middle, angled inwards at submedian fold and bent outwards to tornus ; a fine waved brown terminal line and series of black points at the interspaces. Hind wing brown ; the termen narrowly suffused with purple-grey except towards apex and tornus and with a fine waved brown terminal line and series of points at the interspaces ; cilia purplish grey ; the underside purple-grey suffused and irrorated with red-brown except at termen, a slight dark discoidal spot and faint waved postmedial and subterminal lines.

Hab. CANADA, Nova Scotia (*Redman*), 2 ♂ ; U.S.A., New York, 5 ♂, 2 ♀, Evans Center (*Grote*), 1 ♂, 1 ♀, Garrison (*Cockerell*), 1 ♂, Pennsylvania, New Brighton (*Merrick*), 2 ♀, New Jersey, Georgia, 1 ♂, Florida (*Doubleday*), 2 ♂ type *amplissima*, Kansas, Colorado. *Exp.* 40-48 millim.

Larva. Saunders, Can. Ent. ii. p. 130 ; H. Edw. Papilio, iii. p. 136.

Slate colour with a lilac tinge ; body covered with waved lines and confused marks of a darker colour, between the segments greenish with about eight small white tubercles ; 10th-12th somites each with raised black line on posterior half ; head with four black stripes. Food-plants : *Acer rubrum* and *A. dasycarpum*.

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